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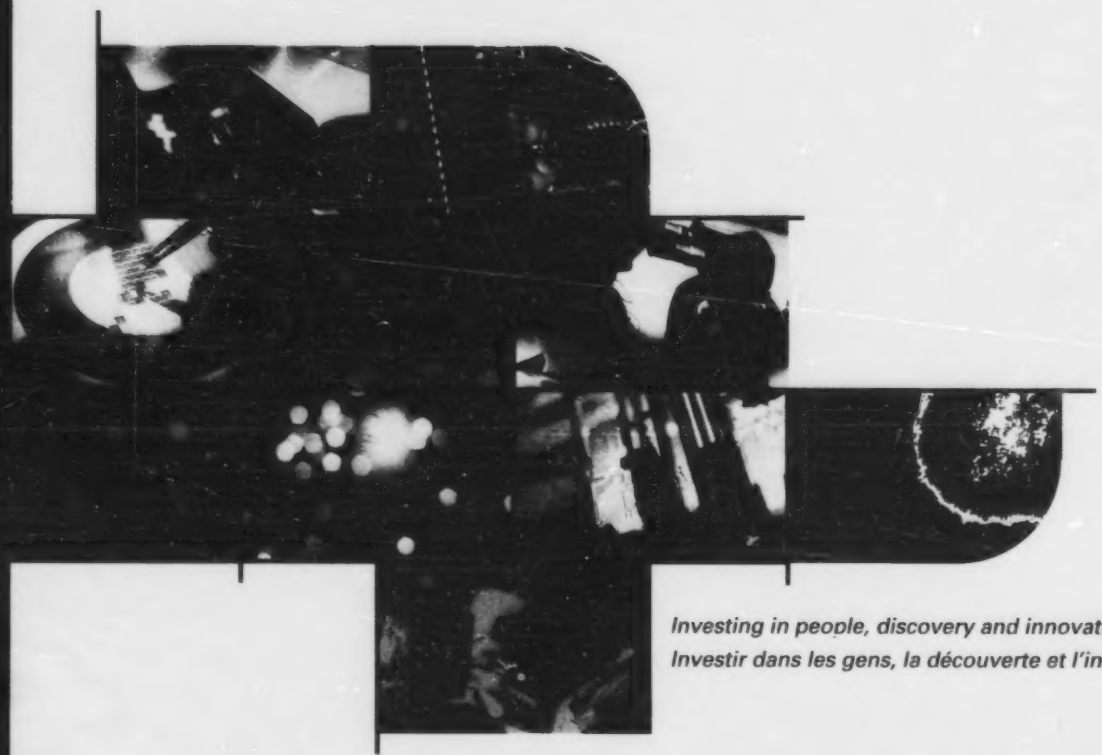
Researcher's Guide



Investing in people, discovery and innovation
Investir dans les gens, la découverte et l'innovation

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350 Albert Street
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Telephone: (613) 995-5992
Facsimile: (613) 943-0742
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Foreword

IMPORTANT
Please note that this is the final print version of this publication. Beginning in September 2001, it will be available on NSERC's Web site only. The electronic version will be made more user-friendly, to allow for easy printing of individual sections.

This guide contains information that will be needed by applicants for and holders of NSERC awards. It supersedes all previous statements by NSERC on award guidelines. The regulations governing the awards are in effect as of September 1, 2000.

NSERC may, without notice, alter the programs or the terms and conditions of the awards. Any major changes will be announced immediately on NSERC's Web site, www.nserc.ca.

Please read the guide carefully and keep your copy for future reference.

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List of Acronyms and Initialisms

The following is a list of acronyms and initialisms we use throughout this guide. Refer to this list as necessary.

AAFC	Agriculture and Agri-Food Canada
ACUIG	Advisory Committee on University-Industry Grants
AECB	Atomic Energy Control Board
ATIP	Access to Information and Privacy Acts
CCAC	Canadian Council on Animal Care
CFI	Canada Foundation for Innovation
CFS	Canadian Forest Service
CHRP	Collaborative Health Research Projects
CIHR	Canadian Institutes of Health Research
CMC	Canadian Microelectronics Corporation
CMTC	Chairs in the Management of Technological Change
CRD	Collaborative Research and Development Grant
CRO	Collaborative Research Opportunities
CSA	Canadian Space Agency
DND	Department of National Defence
EARP	Environmental Assessment Review Process
ESSNRCan	Earth Sciences Sector of Natural Resources Canada
GSC	Grant Selection Committee
IOF	International Opportunity Fund
IPM	Intellectual Property Management
IPP	Institute of Particle Physics
IRC	Industrial Research Chair
MFA	Major Facilities Access Grant
MRC	Medical Research Council of Canada
NATO	North Atlantic Treaty Organisation
NCE	Networks of Centres of Excellence
NFS	New Faculty Support Grant
NHRDP	National Health Research and Development Program
NRC	National Research Council
NSERC	Natural Sciences and Engineering Research Council of Canada
R&D	Research and development
RPA	Research Partnership Agreements
RPP	Research Partnerships Program
SAP	Subatomic Physics
SME	Small- and medium-sized enterprise
SSHRC	Social Sciences and Humanities Research Council of Canada
TPP	Technology Partnerships Program
UFA	University Faculty Awards

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Introduction

What is NSERC?

NSERC (the Natural Sciences and Engineering Research Council of Canada) is the national instrument for making strategic investments in Canada's capability in science and technology. An arm's-length federal agency, it is responsible for promoting and supporting research in the natural sciences and engineering, other than the health sciences.

The Council's mission statement clearly defines its purpose:

> *NSERC invests in people, discovery, and innovation to build a strong Canadian economy and to improve the quality of life for all Canadians. It supports research in universities and colleges, research training of scientists and engineers, and research-based innovation.*
>
> *The Council promotes excellence in intellectual creativity in both the generation and use of new knowledge, and it works to provide the largest possible number of Canadians with leading-edge knowledge and skills to help Canada flourish in the 21st century.*
>
> *NSERC fulfils its mission by awarding scholarships and research grants through peer-reviewed competition, and by building partnerships among universities, colleges, governments and the private sector.*
>
> *NSERC itself is committed to institutional innovation in achieving its mission.*

Overview of Programs in this Guide (detailed table on pages 13-15)

Program	Description (pages)
Support for Research Activities	**13**
Research Grants (including Project Research Grants)	16
Collaborative Research Opportunities Grants	17
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Other Federal Councils Supporting Research

Two other federal councils offer support to university researchers. The Canadian Institutes of Health Research (CIHR), formerly the Medical Research Council of Canada (MRC), support the creation of new knowledge and its translation into improved health for Canadians, more effective health services and products, and a strengthened Canadian health care system. The Social Sciences and Humanities Research Council of Canada (SSHRC) promotes and supports research and research training in the social sciences and humanities. If you do not know which granting council you should apply to, refer to Appendix 1.

Other NSERC Programs

Besides offering grants to researchers, NSERC supports a number of other activities. It offers study and research awards to undergraduate and graduate students, and postdoctoral fellows. These awards are tenable in universities and other organizations in Canada and abroad, and in Canadian industry.

NSERC's University Faculty Awards program, which was originally geared to women scientists and engineers appointed to academic positions in the natural sciences and engineering, has been extended to include Aboriginal men and women who are being considered for university faculty positions.

NSERC also administers the Visiting Fellowships in Canadian Government Laboratories program on behalf of Canadian government departments and agencies, and nominates Canadians for postdoctoral fellowships offered by two Japanese agencies.

All these awards are described in NSERC's *Scholarships and Fellowships Guide* (see table on page 4).

NSERC also offers the following awards for which researchers must be nominated. Calls for nomination and further information on these programs are posted on the NSERC Web site and are available in university research grants offices.

The Gerhard Herzberg Canada Gold Medal for Science and Engineering

This award (formerly known as the Canada Gold Medal for Science and Engineering) has been renamed to honour the late Gerhard Herzberg, who won the 1971 Nobel Prize in Chemistry for his work in molecular spectroscopy.

The NSERC Herzberg medal is awarded to an individual for both the sustained excellence and the overall influence of a body of work conducted in Canada in the natural sciences or engineering.

The recipient may be a scientist or engineer who conducts research in a Canadian university, government research institution or private corporation. Current NSERC Council members are not eligible for nomination.

NSERC E.W.R. Steacie Memorial Fellowships

Up to six fellowships are awarded annually to excellent scientists and engineers who are at an early stage in their careers and who have already earned a reputation for original research in their fields. A candidate should have obtained a doctorate within the last 12 years and should be an NSERC grantee.

NSERC Doctoral Prizes

These prizes recognize high-quality research by students completing their doctoral degrees in science or engineering. Two prizes are available in the natural sciences, and two in engineering. Each prize consists of a citation, a silver medal and $5,000.

Science Promotion Awards

Michael Smith Awards

These awards (formerly administered by Industry Canada) honour individuals and organizations who make an outstanding contribution to the promotion of science in Canada, through activities encouraging popular interest or developing science abilities. Up to five awards will be available each year.

Overview of Programs in the NSERC *Scholarships and Fellowships Guide*

Program	Application Deadline
Undergraduate Level	
Undergraduate Student Research Awards in Universities	Set by university
Undergraduate Student Research Awards in Industry	Any time
Postgraduate Level	
Postgraduate Scholarships	November 15[a] November 24[b]
Industrial Postgraduate Scholarships	Any time
Postdoctoral Level	
Postdoctoral Fellowships	November 15
Industrial Research Fellowships	Any time
Other Awards	
University Faculty Awards	November 1
Visiting Fellowships in Canadian Government Laboratories	Any time
Fellowships in Japan	Any time

[a] Candidates applying directly to NSERC.

[b] Candidates have to meet an earlier university deadline.

PromoScience Program

The PromoScience Program provides grants through a competitive process to support organizations involved in promoting science and engineering to Canadian youth.

SPARK Program

Through SPARK (Students Promoting Awareness of Research Knowledge), students with an aptitude for communications are recruited, trained and paid to write stories based on NSERC-supported research at participating universities.

Programs Managed Jointly With Other Organizations

Networks of Centres of Excellence (NCE)

This program focuses on building strong links among university, government and industry researchers working in different disciplines and widely separated institutions, and on accelerating the transfer of new technology to the private sector. The goal is to boost Canada's performance in science and technology, and to facilitate the transfer of knowledge to those who can use it to advance our social and economic development.

The program is managed jointly by NSERC, SSHRC, CIHR and Industry Canada. For more information, contact:

Networks of Centres of Excellence Program
350 Albert Street
Ottawa, Ontario K1A 1H5
(613) 995-6010

Canada Research Chairs

The goal of this program is to enable Canadian universities, together with their affiliated research institutes and hospitals, to foster research excellence and enhance their role as world-class centres of research excellence in the global, knowledge-based economy.

The program is managed jointly by the Canada Foundation for Innovation (CFI), Industry Canada and the three research granting agencies (NSERC, SSHRC and CIHR). For a copy of the complete Program Guide, consult the Web site at www.chairs.gc.ca. For more information, contact:

Canada Research Chairs Program
350 Albert Street
Ottawa, Ontario K1P 6G4
(613) 943-3082

Support for the Design and Testing of Microelectronics

Canadian Microelectronics Corporation (CMC)

CMC is a not-for-profit organization established by NSERC in 1984 to provide industrial microelectronic technologies to Canadian universities, both to facilitate world-class research and to ensure a strong source of well-trained graduates. The corporation is supported by contributions of technology, services and cash from industry and by matching funding from NSERC. CMC acts as a central point for the distribution of microelectronics-related information and technology to universities. It also offers design and engineering support and a prototyping fabrication service to industry, primarily to small and medium-sized enterprises. For information, contact:

Canadian Microelectronics Corporation
Queen's University
Kingston, Ontario K7L 3N6
(613) 530-4666

Chapter 1: What Do I Need to Know to Apply for an Award?

1.1A Am I eligible to apply for or receive NSERC funding?

1.1A.1 University Faculty

At the time of application,[1] you **must** hold, or have a firm offer[2] of, an academic appointment at a Canadian university, for:

- a tenured, tenure-track or life-time professor emeritus position; **or**
- a term position of at least three years.

The appointment must be ratified by the person(s) or body responsible for approving academic appointments, or their delegate(s), and must be in accordance with university statutes.

The position must require you to engage in research that is not under the direction of another individual, and authorize you to supervise or co-supervise students registered in an undergraduate or graduate degree program, or postdoctoral fellows.

[1] In exceptional circumstances, offers that are still pending approval at the time of application can be finalized and confirmed in writing to NSERC within six weeks following the application deadline.

[2] Appointments that are conditional on obtaining NSERC grants or other sources of support will be considered ineligible.

You must engage in research in the natural sciences or engineering (if there is possible overlap with other federal granting councils, refer to Appendix 1).

You must not hold a full-time position (academic or other) outside Canada.

You must not be under a sanction from NSERC, SSHRC or CIHR resulting from a finding of financial or scientific misconduct.

During tenure of the award,[3]

- you must not be enrolled in a graduate program in the natural sciences or engineering;
- your salary must not be paid out of NSERC (or other federal granting council) grant funds; and
- you must not hold federal granting council fellowships or scholarships, except in the following cases:

  - **NSERC Salary Support Programs**
    Women's Faculty Award holders
    Steacie Fellows
    University Faculty Award holders
    Industrial Research Chair holders
    Women in Science and Engineering Chair holders
    Holders of Chairs in the Management of Technological Change
    Holders of Chairs in Design Engineering

  - **Institute of Particle Physics (IPP)**
    IPP Research Scientists

  - **CIHR or SSHRC Salary Support Programs**
    e.g., CIHR Scholars

[1] In exceptional circumstances, offers that are still pending approval at the time of application can be finalized and confirmed in writing to NSERC within six weeks following the application deadline.

[2] Appointments that are conditional on obtaining NSERC grants or other sources of support will be considered ineligible.

[3] Applicants for Research Grants must take up the position and complete all degree requirements no later than September 1 of the year of the award.

Applicants to the Collaborative Health Research Projects (CHRP) and Genomics Projects competitions must hold an eligible position at a Canadian university at the time of the release of funds, i.e., by November 1, 2000, for CHRP and by February 1, 2001, for Genomics.

If you are a co-applicant who does not have an appointment in a Canadian postsecondary institution and are involved in collaborative research or group grants, you must be qualified to undertake research independently. You are not eligible to hold NSERC grants, and are expected to bring your own resources to the collaboration.

Location of Tenure

Unless otherwise specified, your NSERC grant is tenable only at, and with the consent of, the Canadian university named in your grant application.

1.1A.2 College Faculty

Note
Researchers from colleges that have been declared eligible by NSERC can participate in NSERC ***project research programs***, as co-applicants with university professors. To be eligible as a co-applicant, you must meet the following requirements:

At the time of application,[1] you **must** hold, or have a firm offer[2] of, a faculty appointment (e.g., at the professorial level) at an eligible Canadian college, for:

- a permanent position; **or**
- a term position of at least three years.

The appointment must be ratified by the person(s) or body responsible for approving such appointments, or their delegate(s), and must be in accordance with the college's statutes.

The position must permit you to engage in research that is not under the direction of another individual.

You must engage in research in the natural sciences or engineering.

You must not hold a full-time position of any kind outside Canada.

You must not be under a sanction from NSERC, SSHRC or CIHR resulting from a finding of financial or scientific misconduct.

During tenure of the award:

- you must not be enrolled in a graduate program in the natural sciences or engineering; and
- your salary must not be paid out of NSERC (or other federal granting council) grant funds.

1.1B What if my appointment changes?

The university must notify NSERC of any change in the status of grantholders during tenure of a grant. See sections 3E.2 (Termination Procedures), 3E.5 (Change in Appointment), and 3E.6 (Sabbatical and Other Leaves).

1.2 How do I apply?

General Information

For most programs, you must use Form 100 (Personal Data Form) and Form 101 (Application for a Grant). You can obtain the paper version of the forms from the research grants office at your institution and the electronic version from NSERC's Web site.

Follow the relevant application procedures described in the outline of each program.

Applications that are incomplete or that do not meet presentation standards may be rejected.

Deadlines

Your application must be received at NSERC by the deadline. If it is postmarked earlier but not received by NSERC by the deadline, it will be considered late and will be rejected. If the deadline falls on a weekend, your application must reach NSERC by the following working day. Most universities also have internal deadlines; contact your research grants office for those deadlines.

Codes

NSERC's *Code Book* is part of the application package available from the research grants office at your institution and the electronic form on NSERC's Web site.

1.3 What do the signatures on the application mean?

One copy of the grant application must bear the original signatures of the applicant and co-applicant(s), and of the department head and university president (or their representatives). If the applicant is also the university president or representative, another senior official must sign the application on behalf of the institution. The university may also require a signature from the applicant's faculty.

The applicant's signature means that he or she:

- agrees to abide by NSERC regulations governing awards as outlined in this guide;
- will use the grant only for the purpose for which it is awarded;
- agrees to abide by regulations regarding animal care, ethical considerations in the use of human subjects in research, and biohazards;
- understands the *Access to Information Act* and the *Privacy Act* (Appendix 2) as they pertain to grant application information;
- has read and agrees to comply with the integrity policy (Appendix 3), and authorizes the university, if need be, to release to NSERC personal information that is relevant to the NSERC application and award;
- will acknowledge, wherever possible, NSERC's funding assistance for the research; and
- certifies that the information provided in the application is complete and accurate to the best of the applicant's knowledge. The provision of false or inaccurate information may result in sanctions, including the termination of funding and disentitlement of the applicant from eligibility for future funding.

The signatures of the co-applicants mean that they:

- also agree to the above; and
- agree that the applicant will administer the grant on behalf of the group.

The signatures of the university authorities certify that:

- the applicant has met the eligibility requirements in section 1.1A.1 of this chapter;
- the university will provide the applicant with the space and basic facilities to carry out the research;
- the university meets the requirements set out in the tri-Council policies on Ethical Conduct for Research Involving Humans and Integrity in Research and Scholarship;
- the university complies with the Canadian Council on Animal Care guidelines, where applicable;
- the university agrees to comply with NSERC's data protection requirements and has adequate safeguards in place to protect sensitive information entrusted to it by NSERC for the purpose of administering applications and awards;
- the university will administer the NSERC funds on the applicant's behalf according to the provisions of this guide;
- the university will release funds to the applicant once all necessary certification requirements have been met; and
- the university will notify NSERC of any change in the applicant's status during tenure of the grant.

The signatures of authorized officers of other supporting organizations certify that:

- the organization agrees with the content of the application and will provide the committed resources; and
- the organization agrees to the release of the public summary of the award and to the publication of the organization's name as a supporter of the initiative.

If the applicant is also a principal of a collaborating company, another senior official must sign on behalf of the company.

1.4 How is confidential or sensitive information handled?

NSERC safeguards the information that it receives from you in its internal files and during the peer review process. It instructs reviewers to keep all information confidential and to use it only for review purposes. If you have particular concerns about confidentiality, please consult NSERC staff. However, NSERC must have sufficient information to assess the scientific, technical or business content of the proposal. (For information on the *Access to Information Act* and the *Privacy Act*, see Appendix 2.)

1.5 Who owns the rights to intellectual property from research?

NSERC does not retain or claim any ownership of, or exploitation rights to, intellectual property resulting from your NSERC grant. Any right to this intellectual property is governed by your university's policy. However, as NSERC's role includes promoting the use of knowledge to build a strong national economy and improve the quality of life of Canadians, every effort should be made to have the results of NSERC-funded research exploited in Canada, for the benefit of Canadians. Within this framework, NSERC also expects access rights to be granted to an industrial partner in recognition of, and in proportion to, the company's contribution to an industrial collaboration. Consult your university research grants office or industry liaison office for guidance on this subject.

1.6 Who owns the equipment or material?

Equipment and material purchased or collected through NSERC grants are the property of your university, except where superseded by legislation. NSERC expects these to be made available to other researchers and students when you are not using them. (Refer to Section 3C.1.2 for additional details.)

1.7 When am I in conflict of interest?

As applicant or co-applicant, you must have no financial or personal interest in any transaction chargeable against an NSERC grant. Contact your research grants office and follow the institution's policies.

Conflict of interest may arise when you or the university have an ownership position in a company that is sponsoring your research. It may be difficult to distinguish between university activities and company activities, and between your contributions as a university researcher and as a principal in the company. NSERC may therefore request evidence that the company has objectively assessed the commercial potential of the research being undertaken, and that the academic interests of the students and postdoctoral fellows are protected. This request may come at the beginning or during the course of the project. NSERC deals with each case individually. (Refer to Appendix 8 for more details.)

1.8
Do I need any certificates, licences or special forms?

You must obtain appropriate certification if your proposed research involves human subjects, animals, biohazards, or radioactive materials.

If your research involves any kind of work outdoors, including field work, the operation of field or marine stations, the use of hazardous substances (outside a laboratory having established hazardous waste control procedures), or other activities which may affect the environment, you must complete Appendix A (Environmental Impact) and Appendix B (Environmental Assessment Pre-screening).
If you require ship time, you must complete form128.
Research in the Yukon, Northwest Territories and Nunavut may require special licences. For further details on the requirements for certain types of research, consult Appendix 4.

Note
You must obtain any required certificates (e.g., involvement of human subjects, animals, use of biohazards) within six months of the award date. The university will not release the funds to you during this period. The award will be cancelled if the certificate requirements are not met within six months.

1.9
How are contributions to research assessed? Are delays in the research and in dissemination of research results taken into account?

See Appendix 5 for details.

1.10
How is the training of highly qualified personnel assessed?

See Appendix 5 for details.

1.11
How do my other sources of funding factor into the review of my application?

See Appendix 1 for details.

1.12
How are applications in engineering and the applied sciences reviewed?

See Appendix 6 for details.

1.13
What is NSERC's policy on women in science and engineering?

NSERC believes that women should have every opportunity to participate fully in science and engineering and strongly encourages women to consider entering careers in these fields.

The Council's programs and peer review system are designed and operated to ensure fair treatment of all applicants regardless of gender.

NSERC recognizes that barriers still exist to the full participation of women in science and engineering careers. It is committed to identifying and working to eliminate any barriers that may exist within its own programs and processes and encourages others to do the same.

In addition, NSERC endorses the use of special initiatives when appropriate to encourage and assist women in reaching full participation in all disciplines.

Note
Refer to section 3E.4 for NSERC's policy on Maternity, Paternity, Medical, or Care and Nurturing Leave and section 3C.3.1.1 for the policy on Paid Parental Leave applicable to graduate students and postdoctoral fellows supported by NSERC funds.

1.14
What is NSERC's policy on parental leave?

NSERC provides parental leave supplements for eligible graduate students and postdoctoral fellows. Refer to section 3C.3.1.1 for information on NSERC's policy on Paid Parental Leave.

1.15
When will I know if my application has been successful?

NSERC will notify you shortly after a final decision has been made. Competition results and a list of ongoing instalments will also be sent to the university's research grants officer and business officer. Results will also be posted on NSERC's Web site. As the results of competitions with deadlines are first made available to your university research grants office, you can inquire there.

1.16
What if I have a question about the decision?

For a number of programs, NSERC sends the selection committee's comments with the results or shortly thereafter. You should note that comments may not be available for all applications. If you do not receive comments on your application within four weeks of receiving the decision, you may submit a written request to NSERC for information on file about the review, such as the selection committee's comments or the external referees' reports, if any.

You should not enter into direct contact with selection committee chairs or members, who are prohibited by the *Privacy Act* from discussing or disclosing any information gained during the peer review process. Direct all your inquiries to NSERC.

1.17
What if I disagree with the decision?

You may appeal a decision only if there is compelling evidence of error or discrimination in the review process. The onus will be on you, as the applicant, to demonstrate that an injustice has occurred. Appeals can be based only on information available in the application. NSERC must receive your appeal within two months of your receiving the decision (by May 31 for Research Grants, and by January 7 for Strategic Projects). NSERC has the right to increase or decrease the duration or level of an award as a result of an appeal. For more information, consult NSERC's Web site (www.nserc.ca).

Chapter 2: Awards Programs

2A Support for Research Activities

Awards Available	Duration	Application Deadline	How to Apply
Research Grants	Up to 5 years	August 15 November 1	Notification of Intent (Form 180) Forms 101 and 100
Subatomic Physics Project Research grants requesting $500,000 or more per year	Up to 5 years	August 15 October 1	Notification of Intent (Form 180) Forms 101 and 100
Collaborative Research Opportunities	Normally 3 years	Section 2A.2	Letter of Intent Forms 101 and 100
Genomics Projects	Up to 3 years	September 15	Forms 101 and 100
Collaborative Health Research Projects	Up to 3 years	July 1	Forms 101 and 100

Awards Available	Duration	Application Deadline	How to Apply
Research Partnerships Program			
- Strategic Projects	Up to 5 years	April 15	Forms 101, 100 and 120
- Research Networks	Up to 5 years	June 1 October 1	Letter of Intent Forms 101, 100 and 120 (only if invited by NSERC)
- Collaborative R&D Grants	Up to 5 years	Any time	Forms 101, 100 and 120
- Technology Partnerships Program	Up to 3 years	Any time	Forms 101, 100 and 120
- Research Partnership Agreements With Canadian Government Departments and Agencies	Section 2A.5.2.3	Any time	Forms 101, 100 and 120
- Industrial Research Chairs	5 years, renewable	Any time	Forms 101, 100 and 120
- Chairs in the Management of Technological Change	5 years, renewable	December 15	Forms 101, 100 and 120
- Chairs in Design Engineering	5 years, renewable	Contact NSERC	No form
- New Faculty Support Grants	Up to 3 years	Any time	No form
- Intellectual Property Management	Up to 3 years	To be announced	No form
NATO Science Fellowships	2 years	October 1[1]	Form 200

[1] Candidates have to meet an earlier university deadline.

2B Support for Equipment and Infrastructure

Awards Available	Duration	Application Deadline	How to Apply
Equipment Grants			
- Equipment Grants	N/A	November 1	Forms 101 and 100
- Major Equipment Grants	N/A	October 1	Forms 101 and 100
- Major Installation Grants	N/A	October 1	Forms 101 and 100
Major Facilities Access Grants	Up to 3 years	August 15 October 1	Notification of Intent (Form 181) Forms 101 and 100

2C Other Support

Awards Available	Duration	Application Deadline	How to Apply
International Opportunity Fund	1 year, generally	Any time	Forms 101 and 100

2A.1 Research Grants (including Project Research Grants)

Objective

Research Grants assist in:

- promoting and maintaining a diversified base of high-quality research capability in the natural sciences and engineering in Canadian universities;
- fostering research excellence; and
- providing a stimulating environment for research training.

Description

Research Grants support ongoing programs of research. These grants recognize the creativity and innovation that are at the heart of all research advances, whether made individually or in groups. Researchers are free to work in the mode most appropriate for the research area.

Researchers can apply for only one Research Grant at a time, either individually or as part of a group but not both. Researchers can only hold one Research Grant at any given time. This restriction does not apply to Project Research Grants, which may be held concurrently with an individual or group grant. If you are currently the sole holder of a Research Grant, you may participate in an application for a Research Grant with other researchers on the understanding that the Research Grant you currently hold will be cancelled if the new application is successful and a grant is awarded. If you currently hold a group grant and wish to apply individually, consult NSERC. Researchers who hold an individual Research Grant cannot reapply for another individual Research Grant until the last year of their current award.

Researchers who apply individually can use their grants to participate in collaborative efforts and should describe these in their proposal. Researchers who see advantages in working together in a long-range collaborative program are encouraged to combine their efforts and apply as a group. The added benefits and costs associated with the collaboration are taken into account in the assessment.

Recipients of Research Grants (except Project Research Grants) are not restricted to the specific activities described in the application, but may pursue new research interests provided they are within NSERC's mandate.

NSERC does not consider requests for supplements to existing Research Grants, except from Steacie Fellows. Recipients may, however, apply for all other types of NSERC grants.

Research Grants are awarded for one to five years, the normal duration being four years. A shorter duration can be requested, at the time of application, by researchers phasing out their research program. Five-year grants are intended for researchers who have held two or more consecutive Research Grants at about the same level. NSERC may award grants for a duration different than that requested.

Application Procedures

To apply for a Research Grant, first submit a Notification of Intent to Apply for a Research Grant (form 180) and a list of your research contributions for the last six years. In May, most potential applicants receive a memo providing instructions for the preparation of these documents. If not contacted directly by NSERC in May, you can obtain a copy of the memo from your university research grants office. NSERC must receive the required material by August 15.

You must then submit the following by November 1 (October 1 for Subatomic Physics [SAP] Project Research Grants requesting $500,000 or more per year):

- an Application for a Grant (form 101), and a Personal Data Form (form 100) for the applicant and each co-applicant;
- samples of contributions such as reprints, preprints and/or manuscripts, excerpts from your thesis, technical reports, etc., to be used by reviewers to assess the quality of your work. These documents should be chosen to represent your most significant recent contributions, or those most relevant to the proposed work, in the last 6 years; and
- a list of the samples of contributions you are submitting with your application.

Review Procedures and Selection Criteria

Applications are reviewed by grant selection committees (GSCs). There may also be input from external referees.

NSERC assigns applications to GSCs on the basis of research field, the objectives of the proposed research program, and input from applicants and committees. You may suggest the committee that you believe to be the most appropriate to review your application on form 180, though NSERC will make the final decision.

If your research is interdisciplinary, a process will be used to ensure an appropriate review of all aspects of your application. For instance, if the application is reviewed by a discipline GSC, input from other disciplines will be gathered, as needed, through an appropriate selection of external referees or through consultation with other discipline GSCs. Alternatively, your application will be reviewed by the interdisciplinary GSC.

Applicants cannot submit the same proposal concurrently to both NSERC and SSHRC or CIHR (see Appendix 1).

Applications are judged according to the following criteria. The onus is on applicants to address these explicitly in their proposal.

- **Scientific or Engineering Excellence of the Researcher(s) (see Appendix 5)**
  - knowledge, expertise and experience;
  - quality of past or potential contributions to, and impact on, the proposed and other areas of research;
  - importance of contributions to, and use by, other researchers and end-users; and
  - complementarity of expertise of the members of the group and synergy (where applicable).
- **Merit of the Proposal**
  - originality and innovation;
  - significance and expected contributions to research;
  - clarity and scope of objectives;
  - clarity and appropriateness of methodology;
  - feasibility; and
  - extent to which the scope of the proposal addresses all relevant issues, including the need for varied expertise within or across disciplines.
- **Contribution to the Training of Highly Qualified Personnel (see Appendix 5)**
  - quality and extent of past and potential contributions to the training of highly qualified personnel (e.g., postdoctoral fellows, graduate and undergraduate students, technicians);
  - appropriateness of the proposal for the training of highly qualified personnel; and
  - enhancement of training arising from a collaborative or interdisciplinary environment (where applicable).
- **Need for Funds**
  - appropriateness of, and justification for, the budget;
  - availability of other sources of funding and their relationship to the current proposal; and
  - special needs related to the nature of collaborative activities or infrastructure costs such as user fees.

2A.2 Collaborative Research Opportunities Grants

Objective

Collaborative Research Opportunities (CRO) grants support the participation of teams of Canadian researchers in major international or interdisciplinary research projects that present a **special** opportunity for collaboration.

Description

CRO grants are project grants that support a limited number of special research initiatives that are not appropriate for consideration under any other NSERC program. Collaborative Research Opportunities normally require in excess of $100,000 annually from NSERC.

These initiatives capitalize on opportunities for collaboration, such as:

- participation in a major international research initiative;
- the need for a large-scale interdisciplinary effort to address a specific problem;
- the timely availability of a particular research resource or facility;
- the outcome of an international workshop to plan a research collaboration; and
- a specific world event.

The special character of the collaborative opportunity must be clearly evident. These initiatives may involve the coordination of efforts from various countries and agencies.

The duration of awards will be determined by the nature and requirements of the project.

Application Procedures

The Selection Committee on Collaborative Research Opportunities will meet twice a year, normally in June and December.

You must submit a Letter of Intent before submitting an application. The purpose of the Letter of Intent is to provide NSERC with information to determine if the proposal is appropriate for consideration as a Collaborative Research Opportunity and to identify the most appropriate review mechanism. Letters of Intent will be accepted at any time, but no later than January 2 if the application is to be reviewed in June, and no later than July 1 if the application is to be reviewed in December.

The Letter of Intent (maximum of four pages) must contain the following information:

- a title;
- a summary of the collaborative opportunity, including some background on the development of the proposed initiative and why it is special;
- a short description of the project;
- the names and institutional affiliations of participating researchers;
- the duration of the project and the approximate amount to be requested (per year);
- why the initiative is not appropriate for consideration under other NSERC programs; and
- suggestions for five (5) external referees, with a brief description of their areas of expertise.

NSERC and members of the selection committee will assess the Letter of Intent and determine if a formal application should be submitted. If you are invited to submit an application, it will be accepted at any time, but no later than April 1 to be reviewed at the June meeting, and no later than October 1 to be reviewed at the December meeting.

You must submit an Application for a Grant (form 101), and a Personal Data Form (form 100) for the applicant and each co-applicant. Foreign co-applicants may submit a resume of no more than 6 pages. Any grant awarded will be for the research activities of persons eligible for NSERC grants.

Review Procedures and Selection Criteria

All applications will be peer-reviewed. Depending on the size and complexity of the proposal, some or all of the following may be consulted:

- external reviewers;
- ad hoc visiting committees;
- NSERC grant selection committees;
- NSERC's Selection Committee on Collaborative Research Opportunities.

The criteria for review are as follows:

- the significance of the **special** research opportunity – reviewers will be looking for novel initiatives and a demonstration that CRO funding would enable the participants to capture unique and significant opportunities;
- the quality of the proposed research project;
- the excellence of the participants;
- the nature and extent of collaboration – the proposal must clearly show how the activities of all the participants are interdependent and integrated toward the achievement of the project's objectives;
- the quality and extent of the training of highly qualified personnel;
- the strength of the leadership and management of the group; and

- the demonstrated need for CRO funding as opposed to other NSERC grants, e.g., Strategic Projects, Collaborative Health Research Projects, Genomics Projects, Research Networks.

Reporting

Monitoring will be done on an ad hoc basis as determined by the review process. Grantees will be informed of reporting requirements at the time of the award.

2A.3 Genomics Projects

Note
At press time, it was not known if a competition would be held beyond the one approved with an application deadline of September 15, 2000. Please consult the NSERC Web site or contact staff for the latest program information.

Context

Genomics research will provide an understanding of the genetic and protein machinery of cells and the ability to harness this knowledge for social and economic benefits. Advances in these areas will have broad implications for Canadians: not only will they impact on human health, but they will also lead to improved agricultural products and practices, alternative sources of fish stocks, and improved silviculture, and they will provide new materials to be used in the production of chemicals and pharmaceuticals and in manufacturing. To increase Canada's ability to meet the challenges presented by these rapidly developing areas following on the competition held in 1999, NSERC will hold a second competition in 2000 to fund genomics-related research projects.

Objectives

In order to increase the ability of the NSERC community to be a strong and integral part of Canada's genomics research effort, this program has been established with the following objectives:

- enhance the university- and college-based genomics research effort in the natural sciences and engineering;
- encourage researchers to undertake concerted efforts related to genomics across research areas; and
- train researchers in genomics and related fields.

Description

Genomics project grants support specific research projects of up to three years' duration on genomics topics in the natural sciences and engineering. Specifically, the following areas of focus are identified:

- Technology development: robotics and other methods to allow the rapid pace needed for competitive genomics research;
- Bioinformatics: methods of storing, analyzing and disseminating genetic information;
- Genome mapping and sequencing;
- Functional genomics: determining the function of the genes identified by sequencing;
- Proteomics: studying the proteins coded by genes; and
- Genotyping: determining the subtle variation in sequence among individuals and in populations.

Applicants are encouraged to incorporate the medical, legal and social elements of their research into their proposals. The proposed research must have milestones with a beginning, an end and clear decision points. Individual researchers or teams will be supported. The applicant must be eligible for NSERC grants and be proposing work in an area that falls under the Council's mandate. Interdisciplinary proposals are strongly encouraged. Co-applicants from sectors other than postsecondary institutions (government and industry) and foreign researchers are welcome to participate, but are expected to bring their own resources to the project. Grant support is

provided only for the research activities of persons eligible for NSERC grants. Participation by partners from outside the university sector is not required.

Selection Criteria

Applications will be assessed according to the following criteria:

- the quality of the proposed research project, relevance to the target areas described above and potential impact on the field of research;
- the excellence of the researcher(s) and the extent to which complementary expertise has been incorporated into the team; and
- the proposed contributions to the training of highly qualified personnel and the quality of the training environment.

Application Procedures

The deadline for receipt of applications at NSERC is September 15. Awards will be announced in January and take effect February 1.

To apply, submit 12 copies (including the original) of the Application for a Grant (form 101); and the Personal Data Form (form 100) for the applicant and each co-applicant. For Part I of Form 101, follow the instructions on how to apply for a Strategic Project Grant in the application package and complete Appendix C (Referee Suggestions). In Part II of the proposal, describe the research proposal using a maximum of 10 pages, and address the selection criteria for this program (see above).

Applicants must justify the level and duration of the funding requested. Requests for equipment must be incorporated into the proposal and justified in relation to the project.

Any overlap, conceptual or financial, with work supported by research grants or any other project support from NSERC or other agencies must be explained.

Review Procedures

Applications are evaluated by external reviewers and an interdisciplinary Selection Panel with expertise in various areas of genomics research.

If the response to the program results in NSERC receiving more applications than can be reviewed in detail, a pre-selection process may be applied to reduce the number of applications before review in detail. Applicants whose applications have not passed this pre-selection step will be so informed.

Reporting

All recepients of three-year grants in these competitions must submit a progress report (maximum 7 pages, 2 copies) during the second year. Payment of the third instalment of the grant is contingent upon satisfactory progress on the research. All grantees must submit a final report (maximum 10 pages, 2 copies). Grantees will be advised of the requirements for and timing of such reports.

2A.4 Collaborative Health Research Projects

Note
At press time, it was not known if a competition would be held beyond the one approved with an application deadline of July 1, 2000. Please consult the NSERC Web site or contact staff for the latest program information.

Context

In its 1999 budget, the federal government announced the formation of the Canadian Institutes of Health Research (CIHR), to begin in 2000. In the interim, MRC, NSERC and SSHRC were provided with additional funds to allow them to begin implementing the objectives of CIHR immediately. Research in the natural sciences and engineering plays an important role in improving the health of Canadians. Today, health research encompasses such fields as genetics, nutrition, molecular biology, microelectronics, and social determinants of health. Increasingly, research groups are interdisciplinary in focus, interactive in nature, and networked across Canada and around the world.

Objectives

The objectives of the Collaborative Health Research Projects are to encourage researchers in the natural sciences and engineering from postsecondary institutions to:

- focus on research that will lead to health benefits;
- translate the results of their research into improved health for Canadians;
- increase the ability of the NSERC community to integrate into the activities of the Canadian Institutes of Health Research; and
- train researchers in areas of the natural sciences and engineering that translate into improved health for Canadians, more effective health services and economic development in health-related areas.

Description

A competition in 2000 will fund collaborative proposals for specific research projects of up to three years' duration in any field of the natural sciences and engineering that, if successful, will lead to health benefits for Canadians. Proposals ranging from the development of fundamental knowledge to applied, industrially relevant research will be accommodated. The research should be project-based and have milestones, a beginning, an end and clear decision points.

Teams of two or more independent investigators are eligible for support. The applicant must be eligible for NSERC grants and be proposing work in an area that falls primarily under the mandate of NSERC. Interdisciplinary proposals and those involving collaboration with medical researchers, clinicians, social scientists and humanists are strongly encouraged.

Co-applicants from sectors other than postsecondary institutions (government and industry) and foreign researchers are welcome to participate, but are expected to bring their own resources to the project. Grant support is provided only for the research activities of persons eligible for NSERC grants. Participation by partners from outside the university sector is not required.

Selection Criteria

Applications will be assessed according to the following criteria:

- the quality of the research project and team;
- the potential for the translation of the results into improved health for Canadians, more effective health services and economic development, including a plan for the communication of the results to the appropriate segments of the health care sector;
- the management of the team, including its leadership and the integration of all involved into the project; and
- the contributions to training in collaborative research (e.g. opportunity for trainees to spend time in different laboratories) and to providing trainees with an understanding of the impact of the research on human health.

Application Procedures

The deadline for receipt of applications at NSERC is July 1. Awards will be announced in November and take effect December 1.

To apply, submit 12 copies (including the original) of the Application for a Grant (form 101); and the Personal Data Form (form 100) for the applicant and each co-applicant. For Part I of Form 101, follow the instructions on how to apply for a Strategic Project Grant in the application package and complete Appendix C (Referee Suggestions). In Part II of the proposal, describe the research proposal using a maximum of 10 pages, and address the selection criteria for this program (see above).

Applicants must justify the level and duration (up to 3 years) of the funding requested. Requests for any equipment must be incorporated into the proposal. Applicants must justify the need and urgency for the equipment to carry out the project. Equipment included in the request generally should be under $25,000.

Any overlap, conceptual or financial, with work supported by research grants or any other project support from NSERC or other agencies must be explained in the body of the proposal.

Review Procedures

Applications are evaluated by external reviewers and an interdisciplinary Selection Panel having a core of expertise in the broad area of health research.

If the response to the program results in NSERC receiving more applications than can be reviewed in detail, a pre-selection process may be applied to reduce the number of applications before review in detail. Applicants whose applications have not passed this pre-selection step will be so informed.

Reporting

All recipients of three-year grants in this competition must submit a progress report (maximum 7 pages, 2 copies) during the second year. The evolution of the interactions with the health community during the project must be explained in the progress report. Payment of the third instalment of the grant is contingent upon satisfactory progress on the research. All grantees must submit a final report (maximum 10 pages, 2 copies). Grantees will be advised of the requirements for and timing of such reports.

2A.5 Research Partnerships Grants

The Research Partnerships Program (RPP) comprises a number of grant types that have a common purpose in promoting closer collaboration between the academic research community and other sectors, including government and, most notably, Canadian industry. This purpose is achieved through the support of high-quality research with societal or industrial relevance, and the transfer of the results to Canadian-based organizations.

The partners and other potential users must possess (or have the potential to acquire) the capacity to apply the research results so as to benefit the Canadian economy.

Collaborative Research

- **Strategic Projects:** Early-stage research in areas of strategic importance to Canada with active participation of public and/or private sectors. See section 2A.5.1.1.
- **Research Networks:** Local, regional or national networks with the active participation of public and/or private sectors. See section 2A.5.1.2.

University-Industry Projects

- **Collaborative Research and Development (CRD):** Basic to applied R&D with strong industrial relevance and joint funding by industry. See section 2A.5.2.1.
- **Technology Partnerships Program:** Pre-commercial development of new or improved products, processes or services arising from university research, jointly funded by a Canadian small or medium-sized enterprise (SME). See section 2A.5.2.2.
- **Research Partnership Agreements With Canadian Government Departments and Agencies:** Similar to CRDs within the mandates and priorities of the other government partner, and often involving collaboration with government researchers. See section 2A.5.2.3.

University-Industry Faculty Support

- **Industrial Research Chairs (IRC):** Prestigious appointments in Canadian universities in areas of strong industrial relevance, with joint industry funding. See section 2A.5.3.1.
- **Chairs in the Management of Technological Change:** Modelled on IRCs and funded jointly with SSHRC and the private sector, with a management of technology focus. See section 2A.5.3.2.
- **Chairs in Design Engineering:** See section 2A.5.3.3.
- **New Faculty Support:** Joint funding by industry of new faculty members and their industrially important research programs. See section 2A.5.3.4.

Infrastructure for Technology Transfer

- **Intellectual Property Management:** Infrastructure support for universities to identify, protect and transfer intellectual property with commercial potential to Canadian industry. See section 2A.5.4.1.

In addition, NSERC will support other innovative initiatives that serve to strengthen university-industry relations. Researchers are encouraged to bring such initiatives to the attention of staff.

For further information see:

- **Appendix 5** – Policy and Guidelines on the Assessment of Contributions to Research and Training
- **Appendix 6** – Guidelines for the Review of Applications in Engineering and the Applied Sciences
- **Appendix 8** – Guidelines for Supporting Organizations
- **Advice to Applicants** – University-Industry Grants – available from NSERC's Web site.

2A.5.1 Collaborative Research

2A.5.1.1 Strategic Projects

The Strategic Project Grants program funds project research in target areas of national importance and in emerging areas that are of potential significance to Canada. The research is early stage with the potential to lead to breakthrough discoveries.

Objective

The overall objective of the Strategic Project Grants program is to accelerate research and training in targeted and emerging areas of national importance.

It is anticipated that the program will result in:

- new knowledge/technology that has potential for impact on Canada's economy, society and/or environment within 10 years;
- highly qualified personnel trained in the identified target areas or in new emerging areas;
- attracting Canadian-based organizations into early-stage collaborations in academic research; and
- knowledge/technology and expertise transferred to Canadian-based organizations having a capacity to use the results.

Description

A strategic project must support the objective of the program (as described above) and the research must fall within one of the areas identified for support. In addition, the project must be well defined in duration, objectives and scope. Projects may last for up to five years.

The participation of one or more academic researchers with one or more non-academic organizations who can apply the results is a requirement. (Non-academic organizations include: non-governmental organizations, industries or industrial consortia and government agencies/departments.) For research in emerging areas, where potential users cannot be identified or may not exist, evidence for this and the potential for exploitation of the research results to the benefit of Canada, in the longer term, must be documented and justified in the proposal. See New Directions below.

A cash contribution from the non-academic participant(s) is not required. They should, however, be actively involved in all stages of the research project from the development of the proposal, through ongoing interaction with the academic researchers on the results and direction of the project, to guidance relating to exploitation and/or commercialization of the results. The level and nature of their involvement in the project will depend on the type of research proposal and the ability of the organization to participate.

The interaction and exchange of personnel between academic institutions and other sectors, as a means of contributing to the training of highly qualified personnel and exchange of knowledge, are encouraged. These may include secondments, cross-appointments, internships, reciprocal laboratory visits and joint workshops. (See Appendix 5 for additional details.)

Target Areas

The target areas are currently under review. They will be announced late in the year 2000 and posted on NSERC's Web site (www.nserc.ca). The New Directions area will remain as described below.

New Directions

The New Directions area provides a mechanism to support outstanding research proposals on emerging topics where the research has a high potential to lead to breakthrough discoveries. The research must demonstrate the potential to be of significant national importance and the onus will be on the applicants to justify their case. "New" relates to the development of new knowledge or a new technology and not a new application of existing knowledge or technology. Proposals should focus on research that has the potential for new opportunities and/or developing a research capacity in Canada where none currently exists.

The New Directions area is not intended to be all-encompassing. Research proposals on topics that fall within the definition of the currently identified target areas are not eligible for support in this area.

The objectives, description, application procedures and selection criteria of the Strategic Project Grants program apply to the New Directions area. However, when non-academic organizations are not involved because a receptor capacity does not exist, it must be documented and justified by the applicant. A plan for the potential exploitation of the results to the benefit of Canada must be provided. This information will be assessed in the evaluation of the proposal.

Application Procedures

The deadline for receipt of applications is April 15. To apply, submit an Application for a Grant (form 101), a Personal Data Form (form 100) for the applicant and each co-applicant, a letter from each non-academic participating organization and form 120. (See Section D of the *Application for NSERC Grants* kit or consult the NSERC Web site for details.)

Requests for equipment must be incorporated into the research proposal. Applicants must justify the need and urgency for the equipment to effectively conduct the research. Separate equipment requests will not be accepted.

Review Procedures

Applications are evaluated in an annual competition in a two-phase evaluation process. A preliminary evaluation will take place at the spring meeting of the selection panels. The strongest proposals will subsequently be evaluated by external reviewers and by the selection panels at their September meeting.

Awards are announced in October.

Selection Criteria

The proposals are evaluated on the basis of the following criteria which are described in the application instructions. Each criterion is of equal weight in the evaluation.

- Originality of the Research
- Quality of the Research
- Quality of the Applicants as Researchers
- Project Work Plan
- Training Potential
- Interactions with the Non-Academic Participating Organizations
- Knowledge and Technology Transfer Potential
- Benefits to Canada and the Non-Academic Participating Organizations

Reporting

During the second year of the project, all recipients of three-, four-, and five-year grants must submit a progress report (maximum 7 pages, 2 copies). Recipients of five-year grants must submit another progress report during the fourth year. Each non-academic organization involved in the project will be asked to evaluate these reports. Payment of the next instalment of the grant is contingent upon satisfactory progress on the research project and in the collaboration with the non-academic partner(s). All grantees are advised of the requirements and timing of such reports.

Ninety days following completion of the award, all grantees must submit a final report on the project's achievements with respect to its objectives. Each non-academic organization involved in the project will be asked to evaluate this report. The assessment of the final report may be used by NSERC when reviewing subsequent Strategic Project Grant applications. Grantees are informed of the requirements for such reports at the appropriate time.

During the five years following completion of the project, NSERC will collect information on impacts resulting from the funding of this research, such as: the number of trainees hired by non-academic organizations that have benefited from the research; the benefits derived by users from outside the university sector; and tangible evidence of knowledge transfer and management of any intellectual property resulting from the research.

2A.5.1.2 Research Networks

Objectives

The objective of the Research Networks Grants program is to foster:

- creation of knowledge and expertise that can most effectively be attained through large-scale multidisciplinary research projects;
- collaboration between university- and college-based researchers and other sectors;
- transfer of knowledge and expertise to Canadian-based organizations;
- training of highly qualified personnel; and
- social and/or economic benefits to Canada.

Description

The Research Networks program funds large-scale, complex research proposals that involve multi-sectorial collaborations on a common research theme and that demonstrate the added advantages of a networking approach. A management structure is required to direct, manage, and integrate the activities of the network. Research Networks normally require in excess of $500,000 annually from NSERC. Local, regional or national networks are eligible. They involve at least five researchers from three organizations that are not formally affiliated. Both private and public sector partner contributions will be assessed in the determination of an appropriate cost-sharing ratio. Networks are normally funded for five years.

This program encourages the interaction and exchanges of personnel between postsecondary institutions and other sectors as part of the training of highly qualified personnel, e.g., reciprocal laboratory visits, joint workshops, and seminars. (See Appendix 5 for additional details.)

Application Procedures

As the first step of the application process, a Letter of Intent (maximum 7 pages) must be submitted by June 1. Applicants are encouraged to contact the Research Networks staff before submitting a Letter of Intent. This letter should address the following aspects of the network proposal:

- names, affiliations and level of participation of the applicant and co-applicants;
- proposed research;
- benefit(s) to Canada;
- involvement of supporting organizations;
- management structure;
- training of highly qualified personnel;
- advantage(s) of a network approach; and
- budget: funds requested from NSERC and cash and in-kind contributions from supporting organizations.

The Research Networks Selection Committee will assess the Letter of Intent. NSERC will then invite selected applicants to submit a formal proposal. You must then submit, by October 1, an Application for a Grant (form 101), a Personal Data Form (form 100) for you and each co-applicant, a letter from each non-academic participating organization and form 120. (See Section D of the *Application for NSERC Grants* kit for details.)

As part of the letter of intent process, NSERC will entertain specific requests for up to $25,000 to assist in defraying the costs of preparing a Research Network proposal.

Review Procedures

Each Research Network application is reviewed by external reviewers and an NSERC Site Visit Committee. A report on the visit will be provided to the Research Networks Selection Committee, which will make recommendations to NSERC on which Networks should be funded.

Selection Criteria

The following evaluation criteria serve as the basis for reviewing Research Network proposals:

- **Merit of the Research Proposal**
  - originality of the proposed research;
  - scientific/technical quality of the research;
  - focus and coherence of the research proposal;
  - quality of the research team, including the mix of expertise and the contribution individual participants will make to the research effort;
  - availability of suitable equipment and facilities; and
  - benefits of the proposed research, and its potential impact, within a reasonable time, on Canada's economy, industry, society and/or environment.
- **Interactions and Partnerships**
  - nature and extent of the research contributions and potential contributions from all participants;
  - level of involvement of supporting organizations in the project;
  - ability of the supporting organizations to exploit the research results to the benefit of Canada;
  - plan for ensuring effective interaction among all participants in the research; and
  - strategy for communicating the results of the project to all interested parties.
- **Training** (see Appendix 5)
  - extent to which network participants are involved in the training of highly qualified personnel;
  - plan to facilitate the training of highly qualified personnel in settings that encourage interaction with the participants;
  - quality/relevance of the proposed training; and
  - applicants' record in the training of highly qualified research personnel.
- **Management and Budgeting**
  - level of commitment of the applicant and key researchers to the project and its management;
  - a management structure that will ensure effective research, research planning, budgeting, and interaction among all the participants;
  - justification for the level and duration of funding requested vis-à-vis the stated objectives; and
  - appropriateness of the overall budget, which includes the funds requested from NSERC and the contributions from other sources.
- **Advantages of a Network Approach**
  - the extent to which a network approach is needed to carry out the research; and
  - the value added by a network approach.

Reporting

Grantees must submit periodic reports as requested by NSERC, normally in the second and fourth years. Continuation of funding is contingent upon satisfactory progress.

All grantees must submit a final report (maximum 40 pages, 4 copies). NSERC may use the Selection Committee's assessment of this information when reviewing subsequent applications. Grantees are informed of the requirements for such reports at the appropriate time.

2A.5.2 University-Industry Projects

2A.5.2.1 Collaborative Research and Development

Objective

The Collaborative Research and Development (CRD) program is intended to give companies operating from a Canadian base access to the special knowledge, expertise and educational resources at Canadian postsecondary institutions and to offer opportunities for mutually beneficial collaborations that result in industrial or economic benefits to Canada.

Description

CRD grants support well-defined projects undertaken by university researchers and their private sector partners. CRD awards cover up to half of the total project cost, with the industrial partner(s) providing the balance in cash and in kind. The industrial cash is normally at least one half the NSERC award. Projects may range from six months to five years in duration but most awards are for one, two, or three years.

CRD projects can be at any point in the R&D spectrum that is consistent with the university's research, training and technology transfer mandate. Eligible collaborations include focused projects with specific short- to medium-term objectives as well as discrete phases in a program of longer-range research. All proposals require evidence of detailed planning and sound budget justification, and must clearly spell out the underlying assumptions, intended approaches, milestones and deliverables.

Industrial Participation

The industrial partner must contribute to the direct project costs in an amount equal to or greater than the amount requested from NSERC. Contributions in kind are considered to a maximum of one half the NSERC request. Cash contributed before the proposal is submitted may be used to start the project, but NSERC will not recognize industrial funds spent more than three months prior to the date of submission. NSERC funds cannot be applied to expenses incurred before a project was approved.

Application Procedures

Proposals can be submitted at any time using forms 100, 101 and 120. All proposals are reviewed externally. Large or complex proposals (requesting $150,000 or more per year) are reviewed by site visit. Those requesting $100,000 or more per year from NSERC are reviewed by a selection committee, the Advisory Committee on University-Industry Grants (ACUIG). The ACUIG normally meets four times a year: in February, June, September, and December. Decisions are usually made within three to five months.

Selection Criteria

Applications are evaluated on the following criteria:

- **Scientific merit:** The project must be scientifically sound, technically feasible, and promise either to generate new knowledge or to apply existing knowledge in an innovative manner.
- **Research competence:** The applicant and the research team together must have all the expertise required to address the defined objectives competently and to complete the project successfully. Academic expertise may be complemented with the know-how residing in the company.
- **Industrial relevance:** The proposal must identify how the work will benefit the company and demonstrate that the project is likely to have economic spin-offs for the Canadian economy within a reasonable time frame.
- **Private sector support:** The industrial partner must contribute an appropriate amount from its own resources to the project, consistent with the risks and rewards involved. The company must also show that it is willing and able to exploit successful research results to benefit the Canadian economy.
- **Contribution to the training of highly qualified personnel:** The proposal should indicate how the knowledge and experience gained by graduate students, postdoctoral fellows, research assistants or others, including company personnel, is relevant to the advancement of the field, to developing practical applications of knowledge, or to strengthening the industrial research base.

Projects that focus on the routine application of existing technology, provide routine analysis, collect data without interpreting underlying mechanisms, or provide professional practice or consulting services are not eligible. Similarly, proposals that involve the set-up and operational management of an institute or a formal or informal group of researchers or that are principally associated with the acquisition and maintenance of scientific equipment will not be considered.

Reporting

CRD projects are monitored closely. Annual progress reports are normally required from both the grantee and the industrial partner. NSERC may waive this for small, basic research projects with minimal in-kind contributions. Final progress reports are required for all projects. NSERC may appoint a Scientific Liaison Officer to assist in the monitoring of progress.

Based on results obtained or problems encountered, grantees may propose amendments to the project objectives and milestones, or budget. Because the amounts of second and subsequent instalments are negotiable, grantees must also provide annual statements of actual expenditures and of anticipated future costs. The next instalment will not be released until the industrial partner has made its current year's contribution, re-confirmed its commitment to contribute in the next year, and (if requested) evaluated the project's progress.

Grantees or companies that have failed to provide a progress or final report may be declared ineligible to apply for or sponsor new proposals.

2A.5.2.2 Technology Partnerships Program

Objective

The Technology Partnerships Program (TPP) supports partnerships between postsecondary institutions and small and medium-sized Canadian companies in order to develop new and improved products, processes and services and, ultimately, to create or preserve jobs for Canadians.

Description

A TPP grant is a one-time award for a specific project to advance a university invention to the point that the company can commercialize it. TPP grants are offered to university researchers to cover up to half of the total cost of joint projects, to a maximum of $150,000 annually, with the industrial partners providing the balance in cash and in kind.

Activities aimed at demonstrating the technical and economic feasibility of an invention or discovery are eligible for funding, including:

- building engineering prototypes;
- refining and implementing designs;
- scaling up processes from bench to pilot scale;
- establishing critical process parameters;
- carrying out field studies; and
- exploring market need.

A TPP project must be designed to allow the company to acquire the technical capability to undertake any further development necessary to take the product or process to market. The company must be prepared to carry out market research, product/process development, engineering, and sales and marketing, once the project has demonstrated that a technology is viable.

Company Participation

Companies that operate from a Canadian base and have fewer than 500 employees are eligible to participate. The SME can be a separate company or a subsidiary of another firm that operates as a profit centre (normally such subsidiaries would have their own President and Board of Directors). The industrial partners must have – or be in a position to acquire – the means to develop, manufacture, market, and distribute the proposed processes or products.

Company Contributions

A company is expected to make a cash payment to the university toward direct costs of the project. In addition, other net direct costs borne by the company may be considered eligible contributions:

- direct salary costs related to the provision of technical, engineering or analytical services;
- cost of materials used to construct prototypes or components;
- patenting costs to a maximum of $10,000 per year.

Application Procedures

Applications may be submitted at any time using forms 100, 101 and 120. Applications are submitted by a university researcher (or research group) and an eligible industrial partner in collaboration with the university's industrial liaison office or its equivalent. The university industry liaison office will assist the researcher and the industrial partner in developing proposals and in negotiating licensing or other such arrangements. Prior to application, the university and the company must have in place a licensing or similar agreement relating to the right to exploit the invention or discovery.

Review Procedures

Applications for TPP grants are accepted and reviewed on an ongoing basis, with final decisions usually made in under three months. Reviewers are chosen for their practical experience and/or scientific and technical knowledge, and familiarity with issues of marketing, industrial project management, and successful technology transfer. All proposals are reviewed externally and by the Project Review Committee.

Selection Criteria

Applications are evaluated on the following criteria:

- **Technical merit**
  - scientific basis for the commercial application;
  - clarity and focus of objectives;
  - novelty, technical complexity, technical risk, and feasibility; and
  - appropriateness of work plan, milestones, deliverables, and decision points.
- **Team expertise and project management**
  - knowledge and experience in the fields of activity;
  - breadth and depth of team expertise;
  - quality of project management;
  - personnel resources allocated; and
  - financial management capabilities and resources.
- **Potential for technology transfer and commercialization**
  - current or eventual capability of the industry sponsor(s) to create new business;
  - capability and commitment to incorporate the technology into a product, process, or service; and
  - appropriateness of the business plan.
- **Commercial benefits**
  - benefits to the company;
  - identified market opportunity and commercial potential; and
  - probable payback to the Canadian economy.

Reporting

Successful applicants and their industrial partners are required to provide periodic reports on the use of grant funds and on the practical and financial outcomes. Based on the results obtained or problems encountered, grantees may propose amendments to the project objectives, milestones, or budget. Because the amounts of second and subsequent instalments are negotiable, applicants must also provide statements of actual expenditures and of anticipated future costs. The next instalment will not be released until the industrial partner has confirmed that it has met its current year's commitment and that it intends to support the project in the coming year.

2A.5.2.3 Research Partnership Agreements (RPA) With Canadian Government Departments and Agencies

The following programs have been established through Research Partnership Agreements signed with several Canadian federal government departments and agencies.

The objective of these programs is to build strong linkages between the private sector and researchers in universities and federal institutes and to create synergy among the partners. Applications may be submitted at any time using forms 100, 101, and 120. Full program descriptions and application instructions are available on NSERC's Web site (www.nserc.ca/programs/resguide/other.htm).

These programs can also accept group applications which include co-applicants from postsecondary institutions.

National Research Council (NRC)/NSERC Research Partnership Program

This program supports research activities including but not limited to projects, programs, and workshops that:

- capitalize on the complementary R&D capacity existing in the universities and in NRC institutes to generate new knowledge in selected areas required to meet economic, industrial, social and environmental needs and opportunities;
- build strong three-way linkages and create synergy between the private sector and researchers in NRC institutes and universities;
- efficiently and effectively transfer research results and technology to receptors in the private and public sectors; and
- train and develop highly qualified personnel in priority areas consistent with the future human resource requirements in the public and private sectors.

Funding is provided for research that involves collaboration with at least one NRC Institute and concurrently with at least one Canadian-based company that contributes in cash or in kind. SME participation is encouraged. Proposals should address identified priority research areas. Grants are awarded for up to five years and range from $100,000 to $400,000 per year.

Department of National Defence (DND)/NSERC Research Partnership Program

This program supports research projects and research programs that:

- capitalize on the complementary R&D capacity existing in the universities and in DND to generate new knowledge and support the development of new technical capabilities relevant to the development and application of dual-use technologies in selected areas of interest to both DND and NSERC;
- build strong two- and three-way linkages and create synergy between researchers in DND and universities and the private sector;
- achieve the efficient and effective transfer of research results and technology to identified receptors in the public and private sectors; and
- train and develop highly qualified personnel in priority areas consistent with the future human resource requirements in the public and private sectors.

Grants are awarded for support of university-based research carried out in collaboration with DND and Canadian-based companies. Approved activities may be supported for up to five years and a maximum of $500,000 per project. Funding may be provided on a 2:1 basis with both cash and in-kind contributions recognized. In exceptional cases the requirement for industrial participation may be waived.

Proposals should address defined priority research areas related to the development of non-weapon specific technologies with dual-use applications relevant to DND and with broader commercial applications.

Agriculture and Agri-Food Canada (AAFC)/NSERC Research Partnership Support Program

This program supports university-based research and research training involving collaboration with Canadian industry and that addresses priority needs and/or opportunities in the agriculture and agri-food sector.

The industrial partner's contributions should represent at least one third of the project cost. Contributions in cash and in kind are recognized. Projects will be approved for terms of up to five years. The program supports research in the following areas: resources, crops, animals and food.

Canadian Forest Service (CFS)/NSERC/Social Sciences and Humanities Research Council (SSHRC) Forest Research Partnerships Program

The broad objectives of this joint program are to promote the sustainable development of forests, the forest industry, and the communities that depend on the forests. It is intended that the research will help integrate environmental, social and economic values, while allowing stakeholders to better understand the complexity of the ecosystem and the importance of this valuable natural resource.

CFS, NSERC, and SSHRC will together provide funding for university-based research that involves collaboration with Canadian-based non-academic users of research results in both the public and private sectors. CFS/NSERC/SSHRC may contribute a maximum of two dollars for each dollar invested by the sponsor(s) of which at least 50 percent must come from Canadian-based profit-making organizations.

Proposals for research should fall within CFS's defined priority areas. Projects are funded for up to three years.

Canadian Space Agency (CSA)/NSERC Research Partnership Support Program

This program was established to promote the peaceful use and development of space, to advance knowledge through science, and to ensure that space science and technology provide social and economic benefits to Canada. The intent of the program is to foster the development of space technology in Canada by encouraging research collaboration between industries and universities and the training of skilled personnel in key areas of technology development. The priority areas are earth observation, satellite communication, robotic systems, science missions, as well as Radarsat and the Mobile Servicing System for the International Space Station.

The cost of the research projects is equally shared by the industrial partner(s), CSA and NSERC. The maximum amount per project is $50,000 per year each. Only cash contributions from industry are recognized.

Earth Sciences Sector of Natural Resources Canada (ESS)/NSERC Research Partnerships Program

This program aims to build strong links between researchers in universities, the private and public sectors, and ESS, and to transfer knowledge and share results and technology. Training and developing highly qualified people in earth sciences who will meet Canada's needs in the years to come is also a priority. The specific objectives are:

- to capitalize on the R&D capacity existing in academic, government, industrial, and other institutions to generate new knowledge and support the development of expertise in selected areas of interest for the Canadian earth sciences sector;
- to build strong linkages and create synergy between researchers in universities, the private and public sectors, and ESS;
- to achieve the efficient and effective transfer of research results and technology to identified receptors in the public or private sectors; and
- to train and develop highly qualified personnel in priority areas consistent with the future human resource requirements in the private or public sectors.

ESS and NSERC provide funding for university-based research that involves collaboration with at least one Canadian-based business or foreign firm where the contribution provides significant benefit to Canada. ESS/NSERC will contribute a maximum of two dollars for every dollar invested by the private sector sponsor. Other partners may also contribute but their commitments do not form part of the funding ratio.

2A.5.3. University-Industry Faculty Support

2A.5.3.1 Industrial Research Chairs

Objective

Industrial Research Chairs (IRCs) are intended to:

- assist universities in building on existing strengths to achieve the critical mass required for a major research endeavour in science and engineering of interest to industry; and/or
- assist in the development of research efforts in fields that have not yet been developed in Canadian universities but for which there is an important industrial need.

Description

An IRC grant provides funding for infrastructure, equipment and general expenses, and the salary of a distinguished senior researcher as the Senior Chairholder. Salary and research funding for associated Junior Chair positions may also be provided.

Chairholders are appointed for a five-year period, renewable for another five years if progress is satisfactory and industrial support continues. Chairholders are expected to focus their activities on the conduct of research and the training of highly qualified personnel, and to carry a reduced administrative and teaching load. They are eligible to hold other NSERC grants during the term of an IRC.

IRCs are funded jointly by NSERC and industry. NSERC will normally contribute up to half the cost, with the sponsor(s) contributing the remainder in cash. NSERC may assume a larger share of the direct costs when a company makes a significant in-kind contribution in addition to the cash support. Provincial or federal government departments and agencies can also co-sponsor an IRC, but only industrial contributions are taken into account when NSERC determines its contribution level.

Strategic Relevance

The IRC proposal must be in an area of high priority for both the university and the industrial partner. The minimum university commitment to the establishment of an IRC includes tenured or tenure-track appointments for chairholders, adequate laboratory and office space for the research group, and additional permanent research positions when the proposed candidate for the Senior Chair is currently on staff at the host university. A university monetary commitment to research, infrastructure and equipment will strengthen the case for support. Similarly, the industrial sponsor must demonstrate a strong commitment to a field of research relevant to industrial activity that is important to the Canadian economy.

Senior Chairholders

Candidates for Senior Chair positions should be researchers of international stature who can bring an innovative perspective to the university in carrying out and managing research, and training researchers. If from an academic background they must have all the qualifications for appointment at the rank of full professor, be recognized experts in their field, and have extensive research experience. Otherwise qualified candidates who come from non-academic backgrounds in industry or government and have limited teaching experience, or whose current positions do not offer opportunities to publish, may be considered for appointment at the associate professor level.

Candidates for Senior Chair positions can be internal (already in a tenured position at the university) or external. In proposing an internal candidate the university must agree to allocate the freed-up funds with respect to the candidate's salary toward an equivalent salary commitment to new research positions in the Chair research area, or in one closely related and complementary to it.

An equivalent salary commitment normally requires the creation of either two tenure-track junior faculty positions or one tenure-track junior faculty position and one non-faculty researcher position for the initial 5-year term of the Chair. The candidates for these replacement positions must have the mandate and qualifications required to conduct independent research and supervise graduate students. The new junior faculty members are expected to collaborate with the chairholder as independent researchers. New, non-faculty researchers must work within the Chair program as integral members of the team.

The university must undertake to fill these positions promptly and to supply NSERC with curricula vitae for the candidates, once selected.

Junior Chairholders

Junior Chair candidates should be promising researchers early in their careers who are qualified for academic appointment as assistant or associate professors. Appointments must be confirmed as

tenured or tenure-track. Junior Chair positions are allowable only as part of a proposal to establish a Senior Chair position. Junior Chair candidates may not be current employees of the applicant university with permanent, tenured, or tenure-track appointments.

Sponsoring Organizations

In addition to contributing one half the direct costs of a Chair, the industrial sponsor(s) must demonstrate a willingness and an ability to collaborate closely and to exploit results of the proposed research in Canada.

Industrial cash contributed toward an IRC is eligible regardless of when it was actually provided, as long as the money has not been spent prior to the application being submitted to NSERC. If the sponsors choose to contribute to an endowment as a means of supporting the Chair, the recognized industrial contribution will be the amount contributed to the Chair over the term of the award.

Note
The Canada Customs and Revenue Agency will recognize cash contributions to NSERC Industrial Research Chairs as Scientific Research and Experimental Development (SR&ED) expenditures under the *Income Tax Act*. For details, see Application Policy SR&ED 99-01, available from the Canada Customs and Revenue Agency (www.ccra-adrc.gc.ca/sred).

Application Procedures

The person submitting an IRC proposal must hold a senior administrative position in the university, such as department head, dean, vice-president or president, with direct or ultimate management responsibility for the proposed Chairholder. The applicant cannot be the candidate for the Chair.

In order to facilitate the recruiting process, an application may be submitted for approval in principle before a chairholder candidate has been identified. Final approval will depend on a full site visit review of the candidate and his/her research program once that person has been identified.

Applications may be submitted at any time. Use forms 100, 101, and 120. These forms include full instructions for preparing a submission. Applicants are strongly encouraged to contact program staff before submitting a proposal.

Review Procedures

All IRC proposals are reviewed by a visiting committee. Applicants will be contacted by NSERC staff regarding the timing and agenda items for site visits. Proposals submitted before a Chair candidate is identified will be assessed by written review. If this initial review is positive, universities have 12 months in which to recruit a Chair candidate. If an extension is needed, a written request should be made. The request must describe the efforts made to identify suitable candidates, the results obtained, and a plan for continuing the search.

The final recommendation for funding is made by the Advisory Committee on University-Industry Grants (ACUIG). The ACUIG normally meets four times per year: in February. June, September, and December. Decisions can be made in four to five months.

Selection Criteria

IRC applications are evaluated on the following aspects:

- **Excellence of the candidate:** the international stature, research competence and track record, and experience of the proposed candidate(s);
- **Quality of the proposal:** the scientific merit, originality, technical feasibility, and industrial relevance of the proposed research;
- **Appropriateness of the setting:** the adequacy of the physical and financial resources to support the Chair and the potential to collaborate;
- **Potential impact:** the growth of a sustainable research activity that will generate results of scientific and industrial relevance;
- **Incremental benefits to the university:** the extent to which the Chair will enhance the university's research capacity, training, and industrial interactions;
- **Industrial relevance and benefits:** the relevance of the research and the benefits that will accrue to the sponsors and to the Canadian economy; and

- **Training of highly qualified personnel:** the opportunities for training of graduate students, postdoctoral fellows, research assistants and others (including company personnel) in areas relevant to the industrial needs.

Public Announcements

Refer to the guidelines in Appendix 9 in planning a public announcement of an IRC award. NSERC will approve a public announcement only after the Senior Chairholder has formally accepted the position and after all conditions of the award have been addressed to NSERC's satisfaction.

Reporting

The chairholder, the university, and the industrial sponsor(s) must submit progress reports after 18, 40 and 57 months. Continued NSERC support is dependent on favourable reviews of the progress of the Chair research program, and the continued contribution of the industrial partner(s), which must be confirmed annually.

Renewal

The 40-month progress review is crucial to determining whether a Chair should be renewed for another five-year term. NSERC renews its support for the Chair based on the Chairholder's contributions, the quality and significance of the research produced by the chairholder's group, the working relationship with industry, the relevance and value of the work to industry, and the impact on the university's research activities. The industrial sponsor is an important participant in this review. A site visit may be held as part of the review.

If the evaluation of the first five years is positive and the company is willing to continue its financial support, NSERC's contribution to the second term will be towards salary only, on a declining scale as follows: 90%, 75%, 50%, 25%, and 10%, respectively, of half the Chairholder's salary, including fringe benefits, at the end of the initial five-year period. Chairholders are eligible to compete for other NSERC grants such as Research Grants, Strategic Project Grants, and other University-Industry Project Grants in both the first and second terms of their Chairs.

The total industrial commitment in the second five-year term must be equal to or greater than NSERC's commitment for the same period and can be used for salary, research or equipment purposes.

2A.5.3.2 Chairs in the Management of Technological Change

A full description can be found in the *Guide for Applicants*, available from NSERC or SSHRC, or on the SSHRC Web site at www.sshrc.ca/english/programinfo/grantsguide/chairs.html.

Objectives

The NSERC/SSHRC Program of Chairs in the Management of Technological Change was established to encourage research, teaching and training on how technological change, innovation and entrepreneurship can best be understood and consequently managed. Chairs funded under the program are expected to:

- improve the management of technological change and innovation in organizations to enhance competitiveness;
- increase technological entrepreneurship;
- facilitate the adoption of new technology in the workplace and in society in general;
- improve the development of public policy and public understanding related to technological change; and
- improve education and training in the management of technological change within and across existing disciplines.

Description

NSERC and SSHRC fund the Chairs in partnership with business/industrial firms and/or other private sector entities. The councils together contribute an amount not to exceed the private sector cash contribution.

Each Chair is funded for an initial period of five years. A Chair award provides funding for the Chairholder's salary and research program. Eligible research expenditures include stipends for graduate students, salaries for research assistants and postdoctoral fellows, equipment, materials and supplies, travel,

computing expenses, publication costs, and other expenses related to the Chair activities.

Application Procedures

Chairs are awarded in an annual competition. The deadline for submitting applications is 15 December. Proposals should be submitted on NSERC Form 101, Application for a Grant; Form 100, Personal Data; and Form 120, Material Required from Supporting Organizations; or the equivalent SSHRC forms. Applicants should contact NSERC or SSHRC for advice before preparing a proposal.

Review Procedures

A Selection Panel jointly appointed by NSERC and SSHRC reviews all eligible applications. The panel includes experts in the social sciences, humanities, natural sciences and engineering.

Selection Criteria

Applications are evaluated on the soundness of the proposal with respect to the goals of the university and the private-sector sponsor, the objectives of the Chair's research program, the calibre of the proposed Chairholder, and the quality of his/her detailed research/activities proposal. Detailed criteria are described in the program's *Guide for Applicants*.

Reporting

The Chairholder, the university, and the industrial sponsor(s) must submit progress reports at the end of the second year and toward the end of the five-year term. Industrial contributions must be confirmed annually.

Renewal

NSERC and SSHRC may renew their support for a Chair, subject to a positive review by both councils and continued commitment from the private sector sponsor. NSERC/SSHRC's contribution to salary in years 6 through 10 will be on a declining scale as follows: 90%, 75%, 50%, 25%, and 10%, respectively, of half the Chairholder's salary, including fringe benefits, at the end of the initial five-year period. Funding for the research program is included in the renewal of a Chair for a second term.

2A.5.3.3 Chairs in Design Engineering

Objective

The Chairs in Design Engineering program was established to improve the level and quality of design engineering activity within Canadian universities. Chairs funded under the program are expected to:

- establish a creative and innovative undergraduate/ graduate training program that gives engineering students the opportunity to experience a functioning design environment and provides them with the skills and knowledge required by the profession;
- design and develop innovative products, processes and technologies;
- establish effective multi-disciplinary design partnerships, teams and networks; and
- act as advocates for design engineering, generating an increased awareness and appreciation in both the research and outside communities for all aspects of design engineering.

Description

Chairholders are appointed for a five-year term, renewable for a second five years if progress is satisfactory and support from the sponsoring organizations continues. The Chair award provides funding for the Chairholder's salary and design-related activities, including costs associated with training, partnerships and promotion. Chairholders must have significant design capabilities, industrial collaborative experience and demonstrated ability in training design engineers.

NSERC will match contributions from sponsoring private and public organizations up to a maximum of $200,000 per year or $1 million over the five-year term of the Chair.

Application Procedures

The applicant must be the Dean of Engineering (or equivalent) with direct responsibility for the Chair. There is no application form for this competition. A *Guide for Applicants* containing detailed instructions is posted on the NSERC Web site (www.nserc.ca).

Review Procedures

All eligible applications will be sent out for external review. A Selection Panel, comprised of design experts from academia and industry, will rank the proposals and make the final recommendations to NSERC.

Selection Criteria

Applications will be evaluated on the basis of the quality of the candidate, the impact of the university design strategy, and the relevance and creativity demonstrated by the action plan in achieving the program goals. Detailed criteria are described in the program's *Guide for Applicants* posted on the NSERC Web site.

Reporting

The Chairholder, university and sponsoring organizations are required to submit progress reports at 18, 36 and 48 months. Private and public contributions to the Chair must be confirmed annually.

Renewal

The decision to renew a Chair for a second five-year term will be based on a review of the Chair's progress during the first 48 months and the proposed action plan for the following five years. If the evaluation of the first term is positive and industry and other supporting organizations are willing to contribute financial support for a second term, NSERC's contribution over the five-year period will be based on a declining percentage of its contribution in the first term: 90%, 75%, 50%, 25%, and 10%. The total funding provided by the sponsoring organizations during that same period must be equal to or greater than NSERC's support.

Contact

Applicants are encouraged to contact NSERC program staff for further details and up-to-date deadline information.

2A.5.3.4 New Faculty Support Grants

Objective

New Faculty Support (NFS) grants are designed to assist universities, jointly with industry, to recruit and place highly qualified persons in junior-level faculty positions in research areas of interest to industry.

Description

NSERC provides a grant equivalent to a cash contribution from industry. NSERC funds are to be used only for the direct costs of research, equipment and infrastructure support for approved NFS candidates, whereas the industry funds are to be used to pay the salary of the incumbent. The maximum grant available from NSERC is $75,000 per year for up to three years. The minimum cash contribution from industry is $25,000 per year.

To be eligible, candidates:

- must not have already taken up their appointment at the university;
- must be new to the Canadian university faculty system, i.e., the proposed position must be the candidate's first tenured or tenure-track appointment in a Canadian university;
- normally should have obtained their Ph.D. within the past five years (note that periods of leave taken for child bearing and rearing will not be counted as part of the five-year period); and
- must be qualified for appointment at the assistant professor level, or higher, in a tenured or tenure-track position.

Recipients may apply for other NSERC grants during the tenure of an NFS grant.

Application Procedures

Proposals may be submitted at any time. There is no application form. The proposal must contain the following:

- a Personal Data Form (form 100) for the candidate;
- at least three letters of recommendation to support the nomination of the candidate. These should include letters from supervisors of the candidate's doctoral and postdoctoral research;
- a letter from the candidate indicating his/her interest in the position and the reasons he/she wishes to take up the appointment. The letter should emphasize the anticipated research directions and perceived benefits in terms of a career path;
- a statement from an appropriate authority at the university indicating how the candidate fits within the university's recruiting plans and its research strategy, priorities and strengths. Confirmation of the intent to appoint the candidate in a tenured or tenure-track position must be included;
- confirmation from the university of space and basic research facilities for the new appointee;
- a statement of commitment from the sponsoring corporation indicating its level of financial support, the reasons it has chosen to sponsor the candidate, and the benefits the corporation expects to accrue from its participation; and
- a three-year budget summary outlining how the contributions of NSERC, the company(ies) and the university will be disbursed.

Industrial cash contributed toward a New Faculty Support application is eligible regardless of when it was actually provided, as long as the money has not been spent by the time the application is submitted to NSERC.

Selection Criteria

The primary criterion is the excellence of the individual. Candidates must demonstrate significant potential to make, or have a proven track record of, important research contributions of industrial relevance. A candidate's field of research must fit within the university's strategy, priorities, and research strengths.

Reporting

Once the NFS grant has been awarded, and at the latest within three months of taking up the appointment at the university, grantees must submit an outline of the proposed research program, endorsed by the university and the industrial partner(s).

The grantee, the university or the industrial partner(s) must submit a final report at the end of the three-year term.

2A.5.4 Infrastructure for Technology Transfer

2A.5.4.1 Intellectual Property Management

Objective

The objective of the Intellectual Property Management (IPM) program is to accelerate and extend the transfer of knowledge and technology residing in Canadian universities to Canadian-based industry. IPM grants are intended to strengthen universities' ability to manage their intellectual property and to attract Canadian industrial partners to exploit it, and to facilitate the professional development of intellectual property managers. The ultimate goal is to contribute to the strengthening of Canada's competitiveness in a knowledge-based economy.

Description

The IPM program provides funding in partnership with universities to support activities related to managing intellectual property and interacting with industry. Universities apply singly or in groups for support of initiatives to improve the effectiveness of technology transfer to Canadian industry.

A competition was held in March 1999 for three-year grants. Details on the next competition will be released when available.

2A.6
NATO Science Fellowships

The following description applies to the 2000 competition for NATO Science Fellowships only. Please note that of the three types of fellowships offered by the NATO Science Fellowships Program, Canada offers only Advanced Fellowships.

Objective

NATO Science Fellowships offer opportunities for emerging scientists and engineers from central and eastern European NATO Partner countries to pursue postdoctoral research in the natural sciences and engineering at Canadian universities.

Description

The North Atlantic Treaty Organisation (NATO) provides NSERC with an annual grant to finance a limited number of awards to recent doctoral graduates from the following central and eastern European countries: Albania, Armenia, Azerbaijan, Belarus, Bulgaria, Czech Republic, Estonia, Georgia, Hungary, Kazakhstan, Kyrgyz Republic, Latvia, Lithuania, Moldova, Poland, Romania, Russia, Slovak Republic, Slovenia, Tajikistan, the former Yugoslav Republic of Macedonia, Turkmenistan, Ukraine and Uzbekistan.

NATO Science Fellowships are tenable at a Canadian university that can provide the research facilities and environment appropriate for the proposed research activity. Fellows must work under the supervision of a faculty member who holds an NSERC grant (Research, Strategic, CRD) or Industrial Research Chair at the time of nomination.

Fellowships are awarded for two years subject to satisfactory progress and availability of funds. A candidate may hold only one NATO Science Fellowship offered by NSERC.

The NATO Science Fellowships provide an annual stipend of $33,000 Canadian, as well as payment of allowable travel expenses for fellows and their families (i.e., spouse and dependent children, if applicable). The stipend is subject to Canadian income tax. No supplements are provided for family members.

Eligibility

Candidates must be citizens of one of the countries listed above and must not be Canadian citizens or permanent residents of Canada.

Candidates must engage in full-time postdoctoral research in one of the fields of research supported by NSERC and be supervised by an NSERC award holder.

Candidates must hold, or expect to receive by the time the award is taken up, a doctorate from a recognized university outside Canada, in one of the fields of research supported by NSERC. Applicants must have obtained their first Ph.D.-equivalent degree no more than two years before the deadline date of the year in which they apply.

If candidates have withdrawn from the work force and active research for at least one year after having received their doctorate for maternity leave or to raise a child, NSERC will extend this eligibility period to six years.

Preference will be given to emerging rather than established researchers. Candidates who have applied for a NATO Science Fellowship with NSERC twice before are not eligible to apply for a third time.

Fellows must be able to function effectively in either an English- or French-speaking environment.

Applicants already at a Canadian university cannot submit an application for a fellowship at the same university.

Application Procedures

Candidates do not apply directly to NSERC but must be nominated by the proposed supervisor and the host university. Prospective candidates should contact the university at which they propose to hold the award to obtain the deadline for submitting a NATO Science Fellowship application to the university. There is only one competition a year. Nominations for NATO Science Fellowships from Canadian universities must be received by NSERC no later than **October 1**.

To apply, the candidate must submit the following to the proposed supervisor in time to meet the university deadline date:

- an Application for an NSERC Scholarship or Fellowship (form 200); and
- a copy of the Ph.D. or equivalent diploma.

Applicants who have not completed all requirements for their degree at the time of the application must submit a letter from their department head that states the expected date of completion of the doctoral degree.

A candidate may be nominated by only one Canadian university. The proposed university must be specified in the application.

The proposed Canadian supervisor must submit the nomination for a NATO Science Fellowship to NSERC (see instructions to form 200).

Each university (via the university's research office or other authorized office) selects the candidates it deems to be of sufficient quality to nominate to NSERC for fellowships. There are no application quotas. Departments nominating more than one candidate must rank these in terms of priority.

Review Procedures and Selection Criteria

Applications are assessed according to the following criteria:

- research ability and potential of the candidate as demonstrated by research or other technical experience and contributions to research and development,[1] and assessment by the current supervisor (Appendix 1 of form 200);
- merit of the proposed research program;
- appropriateness of the location of tenure and supervisor to carry out the proposed research program;
- potential for long-term collaboration and benefits to the university and to Canada; and
- communication skills of the candidate.

[1] Contributions as demonstrated by publications in some foreign journals may be difficult to evaluate. The impact of these contributions and quality of the journals should be explained by the proposed supervisor.

Preference will be given to candidates who have not previously held a NATO Advanced Fellowship in another NATO country and to candidates applying directly from an eligible eastern or central European country, i.e., preference over eligible candidates applying from another country in which they may be residing at the time of application.

There are no award quotas by university or by country of origin of fellows.

Successful candidates are notified of the decision in January. Awards must be taken up by **July 1**.

To hold an award, the fellow must be engaged in full-time research at an eligible institution.

2B
Support for Equipment and Infrastructure

2B.1
Equipment Grants

Objectives

Equipment Grants foster and enhance the research and research training capability of university researchers by supporting the purchase of research equipment and installations.

Description

Equipment Grants assist in buying or developing research equipment that costs more than $7,000. Items costing less than $7,000 each can be purchased with Research Grant funds or be included as a complement to a main piece of equipment being requested.

Equipment grant applications are divided into three categories according to the total cost (before tax) of the equipment and **not** according to the amount requested from NSERC. The categories are:

- Equipment Grants: $7,001 to $150,000;

- Major Equipment Grants: $150,001 to $325,000; and
- Major Installation Grants: more than $325,000.

NSERC may assign applications to a different category for comparison with similar applications or to ensure the most appropriate review.

The eligibility of specialized facilities such as large environmental chambers and mobile laboratories is considered on a case-by-case basis. Applicants or research grants officers should contact NSERC before submitting proposals.

Equipment may be purchased while an application is under consideration and the funds reimbursed once an award is made, only if the equipment was ordered after the date the application was submitted. Such a purchase is made at the applicant's and university's risk. Applications for equipment ordered before the date of submission will not be accepted.

Application Procedures

The deadline for receipt of applications is:

- October 1 for Major Equipment and Major Installation Grants; and
- November 1 for Equipment Grants.

Your application may be rejected if you do not respect the deadline for the appropriate equipment category.

To apply in any category, submit an Application for a Grant (form 101), and a Personal Data Form (form 100) for the applicant and each co-applicant.

A letter from the department must accompany every Major Equipment Grant application. The letter must indicate the importance and priority that the department places on the proposed equipment and the extent to which the department proposes to provide support.

Applications for Major Installation Grants must be accompanied by a letter from the university president indicating the importance and priority placed on the proposed equipment or facilities. The letter should explain the support the university will provide, such as the provision of space, financial contributions to the purchase and installation, the purchase of ancillary equipment, funding of technical support staff, etc.

Letters from supporting organizations, if submitted, should clearly explain the support that the organizations will provide, such as their involvement in the research, financial contribution (cash or in-kind) to the purchase and installation of the equipment, etc. If a cash contribution towards the purchase of the equipment is provided by an organization other than the host university, a letter is required from the organization confirming this commitment.

Review Procedures and Selection Criteria

Applications for Equipment Grants are reviewed by grant selection committees. Applications for Major Equipment and Major Installation Grants are reviewed by appropriate committees representing the disciplines involved, with advice from grant selection committees. External reviewers may be consulted and ad hoc visiting committees may be appointed for Major Installation applications.

Criteria for review are as follows:

- excellence of the applicant(s);
- merit of the proposed research program(s);
- need and urgency for the equipment, including availability of and access to similar equipment;[1]
- suitability of the proposed equipment for the proposed research program(s); and
- importance of the equipment for the training of highly qualified personnel.

Additional criteria for Major Equipment and Major Installation Grants are as follows:

- clearly defined organizational structure that will ensure the equipment is well operated and maintained;
- synergy with existing equipment or facilities. Synergy is defined as the extent to which a grouping of equipment and staff enhances the value and capability of each piece of equipment and enables researchers to obtain results or carry out studies that would otherwise be very difficult or impossible. Synergy of the equipment is viewed as a positive

[1] If you report anticipated use by, or benefit to, other sectors, you should describe the support secured from these sources or demonstrate the efforts made to obtain it.

factor, but is not a necessary requirement for funding; and

- accessibility to other users.

Major Equipment and Major Installation Grants may include operating costs such as salaries and training of technical support staff during the initial phase-in period (up to two years) of operations.

2B.2 Major Facilities Access Grants

Objective

Major Facilities Access (MFA) Grants support researchers' access to major regional or national research facilities.

Description

Major Facilities Access Grants support researchers' access to facilities or research resources that are significant in size, value or importance and that are not routinely available in Canadian universities. The facilities are used by researchers from a number of institutions, including universities, government laboratories and companies within a region or across the country. These resources cannot be entirely supported from sources such as user fees and research grants. They may include large special items of research equipment, specialized experimental facilities, or a core of highly skilled technical or professional research support staff essential to the research activities of a group.

Major Facilities Access Grants are not intended to maintain facilities that are standard in a discipline and present in many university departments.

Major Facilities Access Grants provide funding for costs such as the salaries of technical and professional research support staff employed to provide support to users, or to maintain and operate the facility, and for other direct costs such as materials, supplies and small equipment essential to the maintenance and operation of the facility. These grants may not be used to support graduate students or postdoctoral fellows or to pay any of the indirect costs of research.

The costs of maintaining and operating a resource should be split into two major components: maintenance costs and recoverable costs. Only maintenance costs are eligible for NSERC MFA support.

Maintenance costs are costs necessary to keep the resource in a state of readiness and are independent of the number of researchers actually using the resource. This would be the baseline cost of keeping the operation viable and would include salaries and expenses of staff essential for the functioning of the resource but not associated with specific research projects.

Recoverable costs comprise expenses directly incurred when researchers use the facility, e.g., costs related to sample preparation and analyses in the case of analytical facilities, food, fuel and staff salaries for specific projects in the case of field stations, etc. These should be charged as user fees against research grants or other funding sources and must not be included in the amount requested from NSERC.

MFA Grants are generally awarded for three years.

Application Procedures

A Notification of Intent to Apply for an MFA must be submitted to NSERC by August 15. Form 181, Notification of Intent to Apply for a Major Facilities Access Grant, is available at your university's Research Grants Office. Its purpose is to provide NSERC with enough information to determine the most appropriate review mechanism for the application; it will not be used for screening purposes. Note that Form 181 is not required for applications in Subatomic Physics.

The deadline for MFA applications is October 1. To apply, submit an Application for a Grant (form 101), and a Personal Data Form (form 100) for the applicant and each co-applicant.

In the case of research resources managed on behalf of the university research community by individuals or organizations not normally eligible for NSERC grants, special arrangements must be made with NSERC before submitting an application.

Review Procedures and Selection Criteria

MFA Grant applications are reviewed by a multidisciplinary committee, according to the criteria listed below.

- **Uniqueness of the facility at the regional or national level**
  - regional or national nature of the facility;
  - level of past or potential use of the facility;
  - accessibility to and actual use by researchers outside the host institution, both academic and non-academic; and
  - uniqueness compared to nearby facilities that may be providing the same service, etc., not routinely available at universities.
- **Need for access to the facility for the research programs**
  - impact of the facility on the research programs of current and projected users;
  - consequence of the loss of access to the facility on the research programs; and
  - extent to which the facility can accommodate the specialized needs of the users.
- **Merit of the research programs that rely on access to the facility and excellence of the user community**
  - quality and significance of ongoing research programs of the users;
  - excellence of the users; and
  - scientific (knowledge and technology) return on the investment in the facility.
- **Demonstrated need for support through an MFA grant**
  - demonstrated need for, and effectiveness of, support through an MFA grant as opposed to contributions from other sources;
  - nature and extent of the commitment and support from universities and other organizations;
  - justification of the NSERC requested funds;
  - proposed sharing of costs; and
  - rationale for the proposed user fees.

Guidelines on User Fees

Type of User	Appropriate Fee
Researchers and their students (internal and external)	Lowest fee
Non-academic users from organizations contributing to the facility	One step above lowest fee
Non-academic users from non-participating organizations	Highest fee

- **Management of the facility**
  - proposed management structure;
  - proposed management and allocation of access to facility to different users;
  - proposed plan and budget for maintenance and operation; and
  - proposed plan to keep abreast of new developments and technology.
- **Contribution of the facility to the training of highly qualified personnel**
  - importance of the facility for training;
  - extent of training; and
  - opportunity for hands-on training.
- **Synergy**
  - defined as the extent to which a grouping of equipment and staff enhances the value and capability of each piece of equipment and enables researchers to obtain results or carry out studies that would otherwise be very difficult or impossible. Synergy is viewed as a positive factor, but is not a necessary requirement for funding.

2C
Other Support

2C.1
International Opportunity Fund

Objective

The objective of the International Opportunity Fund (IOF) is to promote new Canadian participation in international research collaborations. A guiding principle is that such Canadian participation must have the potential to be of significant benefit to Canada.

Description

The International Opportunity Fund supports Canadian participation in specific international opportunities such as workshops and symposia designed to lead to international collaborations, and the initial (pre-research) stages of international collaborative research projects and programs. Costs covered by the IOF grant are not normally suitable for funding from other NSERC programs. The program thus helps Canadian research groups to establish collaborative projects with research groups or networks abroad, and facilitates the access of Canadian researchers to major international programs. Costs associated with Canadian participation in international science bodies (for example, those under the umbrella of the International Council of Scientific Unions [ICSU]) are not eligible.

In addition to the responsive mode described in the previous paragraph, NSERC may also undertake to make calls for proposals, announcing a new international project, and inviting applications for IOF funding to investigate the opportunity. Such invited applications must meet the same standards of merit as all other applications to the IOF program – there is no guarantee of funding.

A strong proposal will demonstrate that there is collaboration among a number of institutions, Canadian and foreign, and provide evidence of support from other organizations.

Grants are usually for activities of a short duration, normally lasting no more than one year. It must be noted that NSERC can take no responsibility for expenditures incurred in the anticipation that an IOF grant will be awarded.

Eligibility to Receive Funds

Eligibility criteria are identical to those for all other NSERC grants, with the exception that applications will be accepted from Canadian groups only. The principal applicant must be eligible for NSERC funding as defined in Chapter 1 of this guide; however, it is not necessary for all Canadian members of the group to be eligible for NSERC funding. Canadian group members who are not eligible to receive NSERC funding are expected to make use of their own funds, or at least to demonstrate that they have sought funding for the IOF activity through their own sources.

Each request for support for foreign collaborators will be evaluated on its own merit. Collaborators from countries with which NSERC has a Memorandum of Understanding or who benefit from international funding in their home country are expected to make use of their own funds, or at least to demonstrate that they have sought funding for the IOF activity from their national organization. NSERC has Memoranda of Understanding with:

- The National Natural Science Foundation of China (NSFC)
- The Academy of Finland
- The Korea Science and Engineering Foundation (KOSEF) of the Republic of Korea
- The Japan Society for the Promotion of Science (JSPS)
- The Royal Society of the United Kingdom

and has exchanged letters with:

- The Deutsche Forschungsgemeinschaft (DFG) and
- The Swiss National Science Foundation (SNSF).

NSERC is also responsible, together with the National Science Council in Taipei, for the Memorandum of Understanding between the Canadian Trade office in Taipei and the Taipei Economic and Cultural Office in Canada.

Details of these understandings are posted on NSERC's Web site (www.nserc.ca/intern/bilagre.htm).

Should the application be successful, the funds will be transmitted to the principal applicant, who will be responsible for ensuring that they are used in accordance with NSERC regulations, and for submitting the required statements of expenditure to NSERC. Group members who are not eligible for NSERC support and foreign partners will not receive funds directly from NSERC, but may receive support, if appropriate, through the principal applicant under NSERC's standard guidelines for compensation and travel expenses (see Chapter 3 of this guide).

Application Procedures

Applications may be submitted at any time of year, and consist of Form 101, Application for a Grant, and Form 100, Personal Data form. All general presentation guidelines must be followed.

Review Procedures and Selection Criteria

NSERC staff assess each application's fit with the IOF program, and may request additional information if this is considered necessary. All applications that are considered suitable for the IOF program are sent for external scientific review. A funding decision is then taken at NSERC, based on the external reviews obtained and staff's evaluation of the match between the proposal and the objectives of the program. NSERC endeavors to provide and answer within 8 to 12 weeks after receipt of the completed application.

Applications are reviewed according to the following criteria:

- excellence of the applicants;
- potential for advancement of excellent research and continued collaboration as a result of the proposed activity;
- need for funding from the IOF program and strength and clarity of the justification for budget items;
- contribution from and level of co-operation with foreign partners;
- potential impact on Canadian research in the area;
- relevance of the opportunity to current or anticipated Canadian and international efforts in the research area;
- advantages of an international approach to the initiative;
- impact on the training of highly qualified people – sensitization to the international dimension of research, unique expertise to be found abroad, and so on; and
- potential for increased international visibility for Canadian research.

Eligible Expenditures

Sections 3A, 3B, 3D, and 3E of this guide apply to IOF grants. However, it must be remembered that the IOF is designed to provide support for the investigation of research opportunities, rather than ongoing program support, and for that reason some of the subsections under Section 3C (Use of Grant Funds) are not directly applicable. IOF holders should contact the NSERC Finance Office when a question regarding the eligibility of a particular expenditure arises. IOF grantees should also note that any research costs associated with the IOF-supported project must be funded from other programs.

Reporting

IOF holders must submit a final report (7 pages maximum) to NSERC no later than six months after the date on which the grant expires. Guidelines for the preparation of these reports will be sent with the notification of award.

CHAPTER 3: Financial and Administrative Use of Grant Funds

3A Responsibilities and Accountability

3A.1 Accountability to Taxpayers

Since NSERC receives its funding through parliamentary appropriations, it has a responsibility to Parliament and to the Canadian people to ensure that the public funds put in its trust are well managed.

To this end, NSERC funds must be used effectively, economically, and in the best interest of the research supported by the award.

3A.2 Roles and Responsibilities

The administration of NSERC awards is carried out by three partners: the recipient, or grantee, the university, and NSERC.

NSERC defines the conditions under which its funds may be used, monitors the use of awards, and interprets its rules and regulations for the university and the grantee.

Awards are given to Canadian academic researchers in the natural sciences and engineering and are administered through university administration

systems. The grantee authorizes expenditures in accordance with NSERC regulations, as outlined in this guide or when imposed as a condition of an award, and with university policies. No one may initiate or authorize expenditures from an NSERC grant account without the grantee's delegated authority.

Each university establishes appropriate policies, controls and systems to ensure that NSERC policies and regulations are followed. The university has the right and responsibility to withhold approval of expenditures proposed by a grantee that contravene NSERC regulations or university policies.

Administrative, personnel and accounting procedures must conform to the standards, practices and policies of the grantee's university. If a university suspects or has evidence that research funds have been used in an inappropriate manner, it must advise NSERC without delay.

3A.3
Conflict of Interest

A grantee or collaborator must not have any financial or personal interest, direct or indirect, in any transaction charged against NSERC grants.

3A.4
Direction of Research

Grantees holding an award such as a Research Grant, for a **program** of research, may deviate from the proposed research activities.

Grantees holding an award for a specific research **project** must adhere to the activities specified in the proposal. Significant deviations from the original objectives or the initial total budget of more than 20% per year or $10,000 per year, whichever is greater, must receive prior authorization from NSERC. Any deviations of more than 20% per budget category must also receive prior authorization.

3A.5
Review of NSERC Accounts

Officers of NSERC's Finance Division periodically visit universities to update information on the administration of NSERC awards and sample research accounts. These visits ensure that appropriate and sound financial practices are followed, and that expenditures from the grants accord with NSERC requirements and the regulations of the current NSERC *Researcher's Guide*.

3A.6
Non Compliance

Non compliance with the regulations outlined in this Guide can result in the freezing or closing of the grant account(s) of an individual researcher or of all NSERC accounts at the university. If grant funds are used to pay expenditures contrary to NSERC's policy, they will have to be repaid to the grant account or to NSERC. Grantees who disregard the regulations outlined in the NSERC *Researcher's Guide*, university policies, or principles of sound financial management risk losing NSERC funding.

Fraudulent use of NSERC funds will be referred to the appropriate legal authorities.

3A.7
Payment of Family Members

Since NSERC has no regulation prohibiting payment of family members from an NSERC grant, the policy of each university applies in such cases. Universities that allow the hiring of family members must ensure that conflict of interest is avoided regarding performance evaluations and related matters.

3A.8
Acknowledgements

Grantees are expected to acknowledge NSERC assistance in publications arising from research supported by NSERC or on equipment purchased with the financial support of NSERC grants.

3A.9
Intellectual Property/Patents

NSERC grantees are encouraged to seek patent protection for their inventions or developments and should consult their university regarding policies and procedures involving patents.

NSERC does not retain or claim any ownership of, or exploitation rights to, intellectual property developed under NSERC funding. These are owned by the university and/or by the university inventor.

3B
Annual Funding of Awards

3B.1
New Awards

Award notification letters are sent to applicants, research grants officers and business officers with a commitment for one year's funding, and indicating future annual instalments, if any.

3B.2
Payment of Grants

Grant funds are sent directly to a university business officer for retention on the grantee's behalf and kept in an NSERC grant account. This arrangement relieves the grantee of most of the administration of the grant: the business officer maintains custody of the grant funds, disburses salaries and other expenditures authorized by the grantee, and provides periodic reports to the grantee and NSERC on the status of grant funds.

The university may not disburse any funds on behalf of the grantee until all specified certification requirements, such as animal care, biohazards, etc., have been met.

To ensure that universities have complete and accurate funding data, NSERC will send to the research grants officers and business officers, in the month following major competition decisions (March or October, depending on the program), a list that identifies all new awards and continuing instalments.

3B.3
Subsequent Instalments

Instalments are subject to the availability of funds through parliamentary appropriations, and conditions may be attached to them.

Each August, NSERC sends the university research grants officers and business officers a listing of the Research Grant and Strategic Project Grant instalments for the next fiscal year. These officials confirm the grantees' academic status. See sections 1.1A and 1.1B.

3B.4
Expenditures and Commitments Against Subsequent Instalments

As indicated on the award notification letter, all subsequent instalments are subject to the availability of funds voted annually to NSERC by parliamentary appropriations.

NSERC is not responsible for the funding of expenditures or commitments by grantees that exceed the NSERC funds to their credit at the university for the current and prior fiscal periods.

3B.5
Extension Period for Use of Funds Beyond Award Period

The following table outlines the award and extension periods for NSERC Grants.

Type of Grant	Award Period	Extension Period
Research Grants	1-5 years	1 year automatic, no further extensions
Strategic Project Grants Collaborative Research Opportunities Collaborative Health Research Projects Genomics Projects	1-5 years	3 months automatic;[1] write to program staff for potential further extension
Research Network Grants Collaborative R&D Grants Industrially Oriented Research Grants Technology Partnerships Program Research Partnership Agreements Industrial Research Chairs Chairs in the Management of Technological Change Chairs in Design Engineering New Faculty Support	1-5 years	Write to program staff[2] for potential extension
Equipment Grants Major Equipment Grants Major Installation Grants	1 year	1 year automatic,[1] no further extensions
Major Facilities Access Grants	1-3 years	1 year automatic, no further extensions

[1] A grantee whose grant period or automatic extension period has expired or will expire during the current fiscal period may not make any new commitments beyond the end of the extension period. For details on the use of unexpended funds at the end of an extension period, see section 3E.7.

[2] A grace period of three months is allowed to meet commitments incurred before the end of the grant period. A grantee may not make any new commitments beyond that date. For details on the use of unexpended funds at the end of a grant period, see section 3E.7.

3C
Use of Grant Funds

3C.1
General Principles

The general regulations for spending research funds are the same for all NSERC awards. In addition, some programs such as Equipment, Industrial Research Chairs, and others, have special spending regulations that must be adhered to.

Expenditures that personally benefit a researcher or a team member are not allowed.

3C.1.1 Use of Funds in Absence of Explicit NSERC Regulations

Grantees who wish to use funds in a manner not covered by explicit NSERC guidelines or regulations **must** consult their research grants officer or business officer prior to doing so. If no explicit NSERC guideline or regulation addresses the question, the university policy applies; if there is no university policy on the subject, the research grants officer or business officer must seek an appropriate ruling from NSERC. Since it is not feasible to regulate every possible transaction using NSERC grant funds, grantees are ultimately responsible for ensuring that sound judgement is exercised at all times.

3C.1.2 Ownership of Items Purchased or Collected With NSERC Funds

Equipment

All equipment and material purchased or collected with NSERC grant funds belong to the university and not to the individual grantee. As custodian, the university is responsible for ensuring that the equipment is used to support the research program of the grantee and co-applicants. Decisions on the use and management of the equipment should be made jointly between the university and the grantee or user group.

NSERC expects that the equipment will be made available to other faculty members and students for their research when not in use by the grantee. Fees may be charged to these users to recover direct costs incurred.

Insurance should not be charged to NSERC grants. It is the university's responsibility to insure all its equipment and assets, including powered vehicles.

If NSERC-funded equipment or vehicles are later sold, proceeds from the sale belong to the university, but should be used for research-related purposes.

Collections or specimens

Scientifically valuable collections of animal, culture, plant or geological specimens collected by a grantee with NSERC funds are the property of the university. They must be held in trust for the research community, which should have reasonable access to them. Such collections should be deposited as quickly as possible in an appropriate repository.

However, NSERC's policy on ownership of collections or specimens does not supersede any federal or provincial legislation on this issue.

NSERC's intention is not to restrict standard and recognized procedures of exchange of material and specimens between researchers and institutions, but to better assure their continuing good condition and future availability.

3C.2 Equipment Grants

3C.2.1 Purchase of Equipment as Requested

Equipment grants must only be used to purchase the specific equipment for which the grant was awarded. If the grantee wishes to purchase equipment different from that specified in the application, he or she must obtain written permission from NSERC prior to its purchase. The grantee may, however, buy a **model** different from that requested in the application without prior NSERC approval.

3C.2.2 Installation or Relocation of Equipment or Material Outside the University

Although equipment or material should be located at the university supporting the application, equipment or material purchased with NSERC grants may be installed at another location if specified in the application, or with the written consent of the university if relocation was not anticipated at the time of application. In approving such requests, universities must give consideration to the accessibility of the equipment by other researchers and research personnel.

See also section 3E.1.2 regarding procedures for moving or relocating equipment purchased with NSERC funds.

3C.3 Allowable Expenditures

Expenditures that can be charged to NSERC grants include, but are not limited to, the following:

3C.3.1 Compensation

Either a salary or a stipend such as a scholarship is an eligible expense for NSERC research grants.

Salaries and related non-discretionary benefits should be paid only for work performed in support of the research program or project. Persons paid from NSERC grants are not considered NSERC employees, NSERC scholars or NSERC fellows.

Allowable compensation expenditures include, but are not limited to:

- salaries to graduate and undergraduate students, research associates, technicians, programmers, etc.;
- salaries to postdoctoral fellows for up to two years;[1]
- consulting fees;
- stipends to visiting researchers not eligible for NSERC funding, for a period of up to three months and to a maximum of $2,000 per month;
- salaries for employees paid from grants for a one-month period of long-term disability; and
- supplemental payments to NSERC Postdoctoral Fellows or NATO Science Fellows.

[1] On an exceptional basis, researchers may offer support for up to three years to attract foreign postdoctoral candidates. Grantees using this exception must send a written justification to NSERC within one month of an offer being accepted.

The annual minimum and maximum salaries that can be paid from NSERC grants are as follows:

Salary Levels

Type	Salary Stipend Level[1]
Graduate Students	NSERC does not impose any minimum for a salary/stipend paid to graduate students from grants, but the amount should be in accordance with the university policy (if applicable). The maximum to be paid to graduate students from NSERC funds is **$16,500**.[2]
Postdoctoral Fellows	The minimum allowance for a salary/stipend paid to postdoctoral fellows from NSERC grants is **$25,000**. NSERC does not impose any limit in terms of a maximum amount.

3C.3.1.1 Paid Parental Leave

On request, eligible graduate students and postdoctoral fellows paid out of NSERC grants may be eligible for paid parental leave. Within six months of a child's birth or adoption in order to be the primary caregiver for the child, you may request a paid parental leave supplement at the current level of compensation from NSERC funds for up to four months, **provided your university permits parental leaves**.

- You must obtain approval from your university prior to the start of your leave.
- The maximum period of paid leave is four months, even in cases of multiple births or adoption of more than one child at the same time.
- If both parents are supported by the Council, each parent may take a portion of the leave, for a combined maximum duration of four months.
- Contact your university to find out what documentation it requires to approve the paid parental leave. This may include birth, adoption or medical certificates.
- If leave is approved, your university will administer the supplement.

Students and fellows should contact the Office of Graduate Studies for information or to request a paid parental leave.

3C.3.2 Travel Expenses for Research-Related Activities

Reasonable out-of-pocket expenses may be paid for the grantee, for students working with the grantee, for research personnel employed by the grantee, or for colleagues working with the grantee, for trips (international or national) of less than three months in duration per trip. Costs normally charged to a grant would cover transportation, accommodation, and meals.

Specifically, these costs may include:

- travel costs to conduct field work;
- travel costs to attend research-related conferences and symposia;
- travel costs to collaborate or consult with peers for periods up to three months;
- travel costs for visiting researchers, including transportation, accommodation and meals for periods up to three months;
- childcare or babysitting expenses while a nursing mother is attending a conference;
- entry visas;
- travel cancellation insurance; and
- insurance costs for vehicle rentals.

[1] These amounts do not include non-discretionary benefits.

[2] This may be supplemented from other non-NSERC sources.

3C.3.3 Expenses Related to a Sabbatical

During a sabbatical leave, expenses claimed from NSERC grants for research-related and personal expenses may overlap. Grantees are therefore cautioned to document all research-related travel and activities carefully during a sabbatical leave.

Eligible expenses may include:

- transportation expenses (one return trip) to and from the sabbatical location;
- transportation costs for research equipment or material to and from the sabbatical location;
- conference travel during a sabbatical;
- direct research expenses, including research assistance, bench fees, and field work expenditures, with appropriate supporting documentation; and
- a vehicle purchased from an NSERC grant, if necessary for research such as field work, with prior university approval: the university owns the vehicle and must license and insure it during the sabbatical period.

3C.3.4 Equipment Purchases and Maintenance

Eligible expenses for equipment purchases and maintenance are shown in the table below.

Program	Eligible Equipment	Related Eligible Costs
Research Grants	Any equipment can be purchased to the limit of funds available	• travel costs to visit manufacturers to select major equipment purchases • brokerage fees for research equipment • purchase of the equipment funded, including transportation costs • extended warranty for equipment • staff training for equipment use • maintenance and operating costs of research equipment, including vehicles, used for NSERC-supported research
All project grants	Only the equipment specified in the application may be purchased (see 3C.2.1)	As above
Regular equipment grants	Only the equipment specified in the application may be purchased (see 3C.2.1)	As above, except that maintenance and operating costs **may not** be paid from equipment grants.
Major Equipment and Major Installation Grants	Only the equipment specified in the application may be purchased (see 3C.2.1)	As above, and may include operating costs such as salaries and training of technical support staff during the initial phase-in period (up to two years) of operations.

3C.3.5 Computers and Electronic Communications

Expenses may include:

- computers, modems, and software (directly supporting NSERC-funded research); and
- charges for the use of the Internet (directly supporting NSERC-funded research).

3C.3.6 Dissemination of Research Results

Expenses may include:

- typing/inputting charges for research manuscripts;
- page charges for publication in print and/or electronic research journals; and
- reprints.

3C.3.7 Miscellaneous

Expenses may include:

- contributions to shared expenditures directly attributable to the funded research program or project, agreed to and authorized by the grantee;
- advertising costs for recruiting research personnel;
- organization of workshops, including refreshment or luncheon costs during an NSERC-supported workshop, as outlined in the Strategic Projects application;
- up to 50% of patent costs from Networks of Centres of Excellence grants;
- an advance for the commitment or purchase of goods or services made while an application is under consideration: such a commitment or purchase is made at the applicant's and/or university's risk;
- office supplies directly used in the research program or project;
- relocation costs for students and postdoctoral fellows and their immediate family members; travel costs up to economy airfare;
- relocation expenses for research assistants, according to university guidelines; and
- payment of meal, accommodation and transportation expenses from Networks of Centres of Excellence grants, provided the expenses are in accordance with the conditions of the award.

3C.4 Non-Allowable Expenditures and Transactions

Items that **cannot** be charged to NSERC grants include, but are not limited to, the following:

3C.4.1 Transactions

- contribution to "pooled" expenses from which no directly attributable benefit is gained by the grantee's research;
- transfers to other researchers; and
- transfers to non-NSERC accounts.

3C.4.2 Compensation

- salaries paid for teaching or other duties not related to research;
- salaries to postdoctoral fellows beyond a two-year period;[1]
- salaries to recipients of other direct NSERC support, with the exception of: NSERC Postdoctoral Fellows; NATO Science Fellows; and supplements to Undergraduate Student Research Award holders;

[1] On an exceptional basis, researchers may offer support for up to three years to attract foreign postdoctoral candidates. Grantees using this exception must send a written justification to NSERC within one month of an offer being accepted.

- salaries of secretaries and administrative staff, except as allowed in section 3C.3.6;
- salary payments to undergraduate students, graduate students, and postdoctoral fellows from MFA Grants;
- any part of the salary or employee benefit plans of the grantee or other persons whose status would make them eligible to apply for NSERC research grants;
- consulting fees to other NSERC grantees or to researchers outside Canada;
- honoraria for guest lecturers; and
- discretionary severance and separation packages.

3C.4.3 Travel-Related

- all interview expenses to recruit students or trainees;
- costs for students or the grantee to defend or present thesis results;
- first-class or business-class travel;
- trips to the home university during a sabbatical leave;
- transportation costs of research personnel to and from a grantee's sabbatical location for supervisory purposes;
- transportation costs of personal belongings;
- living expenses during a period of sabbatical leave, whether at home or at the sabbatical location;
- passports and immigration fees;
- costs of immunization and medications; and
- health insurance costs.

3C.4.4 Indirect or Overhead Costs

Since universities agree to provide the space and facilities to carry out research, NSERC funds should not be used to pay any part of indirect or overhead costs, such as:

- facilities and basic utilities, including renovations, expansions, heat, air conditioning, light, cleaning, waste disposal, or water;
- purchase, repair or maintenance of office furniture and equipment;
- administrative charges and fees;
- telephone lines and equipment, including installation, purchase and monthly rental;
- Internet hookup charges;
- insurance costs for university-owned equipment or vehicles, used both at, or away from, the university;
- health insurance beyond a provincial plan; and
- life insurance.

3C.4.5 Miscellaneous

Ineligible items include:

- teaching relief;
- education-related costs such as thesis preparation, tuition and course fees;
- membership fees;
- subscriptions and books available in the university library;
- book printing costs;
- monthly or connection charges for access to the university local area network;
- communication links from a researcher's home;
- voice mail, cellular phone rental or purchase;
- monthly parking fees for a vehicle;
- waste disposal, including the disposal of radioactive or hazardous wastes from research projects;
- patent costs (except as outlined in section 3C.3.7);
- clothing; and
- entertainment and hospitality (except as outlined in section 3C.3.7).

3D Reporting

3D.1 Research Activity

Research activity reports (progress or final) are required for most types of grants. See specific requirements for each award in Chapter 2 under "Reporting," if applicable.

3D.2 Financial Reporting

Financial reports are required annually for all grants. The NSERC fiscal year ends on March 31. By the following June 30, for each NSERC account, grantees must submit a financial report consisting of one copy of a signed Statement of Account (SOA).

The university business officer must ensure that a copy of the SOA signed by the grantee is on record at the university.

The annual SOA must indicate the total outstanding commitments.

Other financial reports may be requested individually as needed.

3D.3 Supporting Evidence

3D.3.1 Compensation and Benefits

All NSERC grantees must be able to provide supporting documentation:

- signed records regarding personnel paid from grant funds, including names, categories, salary levels, and length of time supported in each case; and
- details of employee benefits charged and relevant calculations.

3D.3.2 Travel Claims

Individual travel claims must be prepared for each trip by each traveller claiming expenses from an NSERC grant. For claimants other than the grantee, the affiliation with the grantee's research group must be indicated.

Claims must include the following information:

- the purpose of the trip;
- the persons or organizations visited and the dates of each visit;
- official documentation indicating the dates of events for conferences and workshops;
- details of daily claims for expenditures relating to those visits;
- details of any vehicle used, kilometrage, and destination;
- original receipts such as detailed hotel bills, car rental agreements and air fare ticket stubs (invoices and credit card slips are not valid receipts); and
- the claimant's signature certifying that **all expenditures listed on the claim are for purposes for which the grant was awarded**, that the charges included have not been claimed from other organizations, and that reimbursements for expenditures received from other organizations will be disclosed to the university.

Travel claims **must** also conform to the standard travel policies and procedures of the grantee's university and **must** be countersigned by the department head or dean as to relevance of travel to research funded.

3D.3.3 Equipment and Other Expenditures

All NSERC grantees must be able to provide supporting documentation:

- supplier invoices indicating details of purchases and prices paid;
- for internal expense allocations or shared expenditures, documentation indicating the exact charge being made, the method of calculation or

attribution, and the grantee authorization for those being assigned to the NSERC account; and

- in the case of the Networks of Centres of Excellence, details of costs associated with networking.

3D.3.4 Powered Vehicles

Detailed daily log books must be kept of kilometrage/mileage by the researcher for all vehicles used for NSERC-funded research.

3E Administrative Matters

3E.1 Transfer Procedures

3E.1.1 Transferring Grant(s) to an Eligible Canadian University

The following documents should be forwarded to NSERC's Finance Division

- from the former university:
  - notification by the grantee stating the date of departure from the university;
  - a signed Statement of Account up to the date of departure; and
  - a Transfer to Another University (form 303).
- from the new university:
  - a letter from the research grants officer, countersigned by the appropriate department head or dean, giving the date of appointment and academic status at the new university; this implies that all requirements for research involving the use of animals, human subjects or biohazards have been met.

3E.1.2 Moving Equipment, Material, or an Unexpended Equipment Grant

If a grantee is moving to another Canadian university and wishes to take an awarded but unexpended Equipment Grant, or to move equipment or other material purchased with NSERC grant funds, the former university may give permission for such a move. NSERC encourages the university to accede to such a request provided the equipment is not necessary to other researchers at that university. If the request is granted, the former university should inform the new university and such assets belong to the new university.

3E.2 Termination Procedures

When a grant is being terminated, the procedure to be followed is determined by whether the termination is initiated by the grantee or the university, or by NSERC.

When a **grantee** ceases to be eligible to hold NSERC funding, or becomes unable to carry out the research for which the grant was awarded, the university authorities (usually the department head) must immediately inform NSERC's Finance Division, and submit the following documents on behalf of the grantee:

- the grantee's Statement of Account as of the date of departure or change in status, or as requested by NSERC;
- a detailed list of outstanding commitments made by the grantee prior to termination, including employment contracts/agreements for research personnel; and
- the grantee's forwarding address, if applicable.

If **NSERC** terminates a grant for a **program** of research, the grantee and university officials will be notified by a finance or program officer. For **project** grants, the grantee must send NSERC the following information, immediately upon receipt of a notification of intention to terminate a grant:

- a Statement of Account as of the date of receipt of the letter announcing intention to terminate the grant; and
- the nature and amount of commitments against the grant.

Neither grantees nor other university officials may authorize any new commitments or expenditures from the grant account after the date of termination, a change in status, or other date indicated by NSERC.

NSERC is not responsible for the funding of expenditures or commitments by grantees that exceed the NSERC funds to their credit at the university for the current and prior fiscal periods.

NSERC may, at the university's request, authorize the payment of outstanding commitments or proposed phase-out expenditures out of the residual funds.

The allowed phase-out period will be determined by NSERC. A standard phase-out period is 3-6 months.

3E.3 Deferral of NSERC Grants

Grantees who wish to defer NSERC's payment of future instalments for one year must advise NSERC's Finance Division and provide a rationale for their request. Grantees who have accumulated funds in their grant account are encouraged to make use of this deferral option.

3E.4 Maternity, Paternity, Medical, or Care and Nurturing Leave

NSERC recognizes that extended leave (maximum one year) granted by the university may have an impact on an individual's research program, and offers the following options with respect to Research Grants:

- when an extended leave of absence has been taken, the grantee may request an extension of the duration of support of the current grant for one or two years at a level up to but not exceeding the current amount;
- such a request must include a justification for the amount requested and be endorsed by the university authorities;
- the grantee may request deferral of a grant instalment for one or two years or may defer submission of a renewal application;
- the grantee may compete for a Research Grant in the usual way.

For other NSERC grants, provided all parties agree, approval may be given to defer an instalment or extend the time required to complete a project owing to delays caused by maternity, paternity, medical, or care and nurturing leave. Submit a request in writing to the appropriate program division at NSERC.

3E.5 Change in Appointment

You must immediately contact NSERC's Finance Division if your academic status changes during the tenure of your award or you take up a position (academic or other) outside Canada.

If your academic appointment changes from full-time to part-time, the following must be sent to NSERC's Finance Division:

- appendices B and C of the Personal Data Form (form 100);
- an updated budget of proposed expenditures for the remainder of the award; and
- an up-to-date statement of account.

3E.6 Sabbatical and Other Leaves

The university must notify NSERC immediately when a grantee takes a sabbatical or other leave during tenure of a grant.

You are not eligible to hold an NSERC grant for leave periods from your Canadian university beyond one year, unless you spend at least two terms per year at an eligible Canadian institution.

For leave periods (sabbatical, unpaid leaves, etc.) which extend to a second year, you may request a deferral of that year's instalment. Funding for the second year of leave and all subsequent instalments will be frozen until confirmation is received that the grantee has returned to the university. If the leave extends beyond two years, previous years deferred and ongoing instalments will be cancelled and the grant terminated without a termination phase-out period.

Note
The effective termination date will be the actual date when the second year of leave began.

3E.7
Residual Balances in NSERC Accounts

All NSERC grants paid to a university's common grant account are deemed to have a primary holder, namely, the grantee on the award notice. The secondary holder is the president of the university administering the grant.

NSERC grants that have not been renewed or extended or that have had to be terminated or project grants completed may contain residual balances of funds allocated in prior years and/or issued in the current fiscal year. NSERC will adjust its next payment to the university for any current year funds not required for the purpose for which those funds were granted, or as determined by NSERC (see section 3E.2). NSERC will allow residual funds from prior years to be retained by the university under certain conditions determined by NSERC's Finance Division. Such funds will be authorized to be transferred to a General Research Fund (GRF). This special NSERC account is held in trust by the university president for the broad purpose of enhancing the quality of research in the natural sciences and engineering.

Appendix 1: Selecting the Appropriate Federal Granting Council and Addressing Other Sources of Funding

A. Selecting the Appropriate Federal Granting Council

NSERC (the Natural Sciences and Engineering Research Council of Canada), the Social Sciences and Humanities Research Council of Canada (SSHRC), and the Canadian Institutes of Health Research (CIHR) [formerly the Medical Research Council (MRC)], support and promote high-quality research in a wide spectrum of disciplines. This includes research that falls between disciplines or that requires the skills of several disciplines. The researcher must apply to the council that deals with the dominant research discipline, i.e., natural sciences and engineering, social sciences and humanities, or health research.

The councils are continuously reviewing their areas of responsibility to minimize gaps in coverage. The councils have flexible mechanisms for the joint review and funding of research activities involving several disciplines or overlapping jurisdictions.

Research Falling Under the Jurisdiction of More Than One Council

For proposals with one applicant or a budget of less than $50,000 per annum, NSERC expects that researchers applying for research grants will normally select the most appropriate federal granting council (NSERC, CIHR, SSHRC) to support their research activities. Measures are taken to ensure that applications which overlap jurisdictions are assessed fairly, with input from the other council(s) as required. Applicants desiring a review by more than one council should attach a covering letter requesting that experts from more than one council be involved in the evaluation of the application.

Although support from more than one council is permissible, a researcher may not submit the same application to NSERC and CIHR or SSHRC.

Researchers who are unsure whether to submit their application to NSERC or to another granting council should contact NSERC before submitting an application.

Research proposals involving more than one applicant, with a budget of more than $50,000 per annum, and that request joint funding with another federal granting council will require joint evaluation. Researchers must apply to an existing program of the council that deals with the dominant research discipline, and must meet the eligibility requirements of that council. The council to which the application has been formally submitted will normally become the lead agency and take prime responsibility for peer review. Applicants should contact the lead council by telephone to discuss their proposal. Applications should be accompanied by a covering letter requesting that experts from more than one council be involved in the evaluation, and suggesting an appropriate sharing of costs. In the case of large, complex proposals, applicants may be advised to send a letter of intent before submitting a full proposal.

The council receiving the application will carry out a preliminary screening to determine if it should undergo intercouncil review, or be considered by one council. The applicant will be notified in either case. If another council becomes the lead agency, additional information may be required by the new agency; however, efforts will be made to minimize demands for additional material.

Once an application is accepted for intercouncil review, the lead council will use its normal review mechanism wherever possible, inviting the other council(s) to participate in the review.

The councils will review the recommendations and agree on the level of funding and on an appropriate funding split. Funding decisions will be made using the usual procedures in each council.

Support of Research in Psychology

The field of psychology is supported by the three granting councils as follows.

NSERC considers applications that relate to fundamental psychological processes, their underlying neural mechanisms, their development within individuals, and their evolutionary and ecological context. Fundamental processes are understood to include:

- sensation and perception;
- sensorimotor integration;
- motivation, emotion, and reward;
- learning and memory;
- cognition and language; and
- sleep, arousal, and the chronobiological modulation of behaviour.

NSERC also considers applications concerning statistical methods for analysis of psychological data.

SSHRC considers applications in the broad area of social psychology. A detailed description of the areas that fall under the jurisdiction of SSHRC is published by that council. These currently include, but are not necessarily limited to:

- experimental social psychology: social behaviour in an experimental setting including the dynamics and processes of interpersonal relations; behaviour in small and large groups; interpersonal influence;
- communication: interpersonal communication; social aspects of psycholinguistics; socio-linguistics and ethnolinguistics; mass media effects;
- social processes and social issues: the examination of social phenomena in a natural setting from a psychological perspective;
- personality: human personality traits and processes and their behavioural manifestations, including emotions and non-pathological emotional reactions; defence mechanisms, cognitive style, creativity, self concept, self perception, and the measurement of these traits;
- developmental psychology: children's social and personality development, social behaviour and personality in adulthood and aging.
- educational psychology: educational research pertaining to both normal and special populations; school learning and prediction of achievement;
- history and philosophy of psychology and psychological analysis of historical figures;
- theory and method: studies of a theoretical or methodological nature; and
- applied psychology: projects in the areas of organizational and industrial psychology, and environmental psychology.

CIHR considers applications for support of research on normal and abnormal psychological processes with clear and direct relevance to human health. This includes research on behavioral aspects of physical health and disease or mental health and disorders. Investigators whose work is directly relevant to the health-related legislation and programs administered by Health Canada may be eligible for assistance under the National Health Research and Development Program (NHRDP).

B. Relationship Between NSERC Proposals and Other Sources of Funds

There are various sources of funding available for each discipline. These include other NSERC programs, and grants from government, industry and private sources. NSERC does not restrict researchers from obtaining other sources of funding, but does expect that there will be no duplication of funding for the same research.

The principles in assessing the relationship with other sources of funding are: 1) Access to NSERC funds should be fair for all applicants, regardless of their other sources of funding; 2) Applications are evaluated according to the program's review criteria; 3) There must be no duplication of funding for the same research. However, when research programs are supported by multiple sources, the additional benefits of NSERC support must be well explained and justified.

The onus is on the applicant to provide sufficient information to enable a review committee to evaluate the relationship with other sources of support and to recommend the appropriate NSERC funding level. The consequence of not providing adequate information to enable a selection committee to assess the relationship to other research support is that the committee may recommend reduced or no funding.

Appendix 2: The *Access to Information Act* and the *Privacy Act* (ATIP)

The *Access to Information Act* (ATI) gives Canadian citizens and people present in Canada a limited right of access to information in federal government records. The *Privacy Act* gives these same individuals a limited right of access to personal information about themselves held in government records and sets out rules and fair practices for the management of personal information by federal institutions. All information collected by NSERC is subject to these laws.

The Access to Information Act

A requester seeking access to records under ATI must write to the ATIP Co-ordinator at NSERC providing a precise description of the records sought and enclosing an application fee ($5.00 at the time of this writing. **Note**: there is no fee required to request information about yourself under the *Privacy Act*. See below.) The submission of a request does not guarantee that a requester will gain complete access to the requested records.

The Act sets out specific exceptions that apply when disclosure of information could be expected to injure private or public interests. In responding to such requests, for example, NSERC would not disclose personal information about identifiable individuals or proprietary technical information submitted in confidence by researchers or companies. Moreover, if a request required a lengthy search or involved a large number of records, a requester can be asked to pay additional fees to help cover the processing costs.

More information about the Act can be obtained from NSERC's Access to Information and Privacy Co-ordinator or from the publication *Info Source*, a register of federal information holdings available in most large libraries. It is important to remember that the ATI Act is intended to complement, not replace, established channels of communication. NSERC has always promoted open informal communication with the research community and with the public. We encourage you to contact us informally before using the Act.

The Privacy Act

The *Privacy Act* gives people in Canada certain rights with respect to personal information about them held by federal institutions. For example, institutions must inform people how their personal information will be used and to whom it will be disclosed. Personal information may be used only for the purposes for which it was originally collected or for uses consistent with that purpose. The Act also contains a procedure for requesting the correction of inaccuracies in personal information.

Making a request under the *Privacy Act* is similar to making one under ATI except that there are no fees associated with requests to see one's own personal information. The *Privacy Act* sets out limits to the right of access similar to those contained in ATI. For example, a person seeking access to his or her personal information would not be given access to personal information about another person.

You do not have to use the *Privacy Act* to obtain feedback on your NSERC application or to access personal information about you held in NSERC files. Simply write informally in the first instance to the appropriate program section.

And please remember that under the *Privacy Act*, the written opinion of a reviewer about your application is available to you, but the name of the reviewer is not.

Use and Disclosure of Personal Information Provided to NSERC

All personal information collected by NSERC about grant, scholarship and fellowship applicants is used to review applications, to administer and monitor awards, and to promote and support research in science and engineering in Canada. Consistent with these purposes, applicants should also expect that information collected by NSERC may come to be used and disclosed in the following activities.

NSERC routinely shares summary information related to applications and awards with relevant officials in the eligible research institutions that endorse and/or administer them.

As part of the peer review process, applications are disclosed to selection committees composed of experts recruited from the academic, private and public sectors. Many applications are also transmitted to external referees, to members of ad hoc review committees or to site visit committees for review. All participants in these review activities are advised of NSERC's expectations with regard to the confidentiality and protection of the information entrusted to them.

The substance of expert reviews and selection committee comments about a proposal are accessible to co-applicants. Although NSERC normally provides such feedback only to the applicant, he/she is expected to share it with co-applicants.

NSERC uses personal information about applicants in its files and databases to identify prospective committee members and reviewers for specific applications.

Because NSERC has a single corporate database, staff are generally aware of applications submitted by the same individual to different NSERC programs. For the purposes of adjudication and award administration, some selection committees are provided with multi-year summaries of an individual's applications and awards in all programs. In cases when, for example, there is a question of possible overlap in the support of an applicant's research activities by two or more NSERC programs, application material submitted to one program may be used during the review of an application submitted to another program.

Applications and documentation submitted to a program in which research support is offered by NSERC in conjunction with another federal government institution may be disclosed to appropriate officials in the other institution.

Applications may be disclosed to program staff in the Social Sciences and Humanities Research Council or the Canadian Institutes of Health Research for the purposes of determining the most appropriate funding jurisdiction or to monitor overlap in federal support.

NSERC routinely publishes and disseminates certain details about successful applications, including the name of the applicant, amount awarded, institution and department (for scholarship and fellowship holders, the proposed location of tenure), the field of research, the project title, and, for grant programs, a summary of the research proposal prepared by the applicant for public release. For scholarship and fellowship programs, this information will be made publicly available immediately after the competition, even though NSERC recognizes that some awards will be subsequently declined or deferred. The information will normally be published on NSERC's Web site.

Files and databases containing personal information may also be used by NSERC for program planning, evaluation and review and in audits, and for generating statistics for these activities.

Information submitted to NSERC is subject to the Tri-Council Policy: *Integrity in Research and Scholarship* and may be used and disclosed consistent with that policy. (For the complete text of the policy, see Appendix 3.)

NSERC collects data on a voluntary basis on the gender of applicants and on whether applicants belong to certain designated minority groups. This data is not used in the peer-adjudication process. It is used for statistical purposes and to promote the increased participation of women and members of designated groups in NSERC programs and on NSERC committees.

NSERC also collects data on the language capability of individuals. This data is not used in the peer-adjudication process. It is used to ensure that individuals who are eventually consulted as peer reviewers have the language capability to adequately review a given application.

NSERC uses the information in its files and databases to generate mailing lists in order to disseminate its publications and other information to the research community.

To file a formal request, or for more information on the Acts, contact:

ATIP Coordinator
NSERC
350 Albert Street
Ottawa, Ontario K1A 1H5
Telephone: (613) 995-6214
Facsimile: (613) 992-5337

Appendix 3: Tri-Council Policy Statement: *Integrity in Research and Scholarship*

As the major federal sources of funds for research and scholarship in academic institutions, the Medical Research Council (MRC) [now the Canadian Institutes of Health Research (CIHR)], the Natural Sciences and Engineering Research Council (NSERC), and the Social Sciences and Humanities Research Council (SSHRC) are committed to the highest standards of integrity in research and scholarship.

The Councils have therefore undertaken to define their policies and expectations with regard to integrity, in a manner consistent with encouraging the highest standards of research and scholarship. The Councils regard any action that is inconsistent with integrity as misconduct.

Integrity in research and scholarship includes the principles listed below, which should be interpreted with the understanding that research can involve honest error, conflicting data or valid differences in experimental design or in interpretation or judgment of information.

These principles of scientific integrity overlap with other areas, such as financial integrity in the use of research funds and the ethical issues involving the use of human or animal subjects in research, in which the Councils have established guidelines and requirements. This document is concerned only with scientific integrity and does not replace any other statements from the Councils on other areas with which this issue may overlap.

Principles and Responsibilities

1. The Councils hold researchers and scholars receiving Council funds responsible for upholding the following principles:

   a) recognizing the substantive contributions of collaborators and students; using unpublished work of other researchers and scholars only with permission and with due acknowledgement; and using archival material in accordance with the rules of the archival source;

   b) obtaining the permission of the author before using new information, concepts or data originally obtained through access to confidential manuscripts or applications for funds for research or training that may have been seen as a result of processes such as peer review;

   c) using scholarly and scientific rigour and integrity in obtaining, recording and analysing data, and in reporting and publishing results;

   d) ensuring that authorship of published work includes all those who have materially contributed to, and share responsibility for, the contents of the publication, and only those people; and

   e) revealing to sponsors, universities, journals or funding agencies, any material conflict of interest, financial or other, that might influence their decisions on whether the individual should

be asked to review manuscripts or applications, test products or be permitted to undertake work sponsored from outside sources.

2. The Councils hold institutions that administer Council funds responsible for:

   a) promoting integrity in research and scholarship; and

   b) investigating possible instances of misconduct in research or scholarship, including:

      - imposing appropriate sanctions in accordance with their own policies; and
      - informing the appropriate Council(s) of conclusions reached and actions taken.

3. The Councils are responsible to the Government of Canada for ensuring that research funds administered by them are used with a high degree of integrity, accountability and responsibility.

Procedures for Promoting Integrity and for Preventing and Addressing Misconduct in Research

1. Researchers and Scholars

The primary responsibility for high standards of conduct in research and scholarship rests with the individuals carrying out these activities. The Councils expect researchers and scholars receiving funds from the Councils to adhere to the principles detailed in the preceding section.

2. Research Institutions

The Councils hold institutions responsible for investigating allegations of misconduct involving researchers, trainees or research staff working with funds from the Councils. Promotion by the institutions of understanding of the issues involved in integrity in research and scholarship offers a valuable means of preventing misconduct.

a) Promoting Integrity in Research and Scholarship

Integrity in research and scholarship is best encouraged by developing awareness among all involved of the need for the highest standards of integrity, accountability and responsibility. Research institutions should provide an environment conducive to this goal, and actively promote programs for the education of researchers, scholars, trainees and staff.

The Councils encourage institutions that manage the Councils' funds to establish mechanisms to educate all who are involved in the collection, recording, citing, reporting and retention of scientific or scholarly material about their expectations for the highest standards of integrity.

Mechanisms for meeting this objective might include encouraging awareness of the issues involved and establishing policies on specific areas. Awareness might be encouraged by establishing information sessions on the principles and practices of scientific integrity for scientists, scholars, graduate students and other trainees, and research staff when they arrive in the institution and at regular intervals thereafter. Institutions are encouraged to develop policies on such areas as requirements for authorship for publications or applications, on copyrights and patents, and on the responsibilities for retention of data appropriate to the range of disciplines that they offer.

b) Investigating Allegations of Misconduct in Research and Scholarship

Allegations may arise from anonymous or identified sources within or outside the research institution; the allegations may be well founded, honestly erroneous or mischievous. Whatever their source, motivation or accuracy, such allegations have the potential to cause great harm to the persons accused, to the accuser, to the institution, and to research and scholarship in general. Each Council requires each research institution that administers its funds to demonstrate that

appropriate impartial and accountable procedures have been established to:

1. receive allegations of misconduct in research and scholarship;
2. conduct and document appropriate enquiries within an established time period;
3. protect the privacy of the person(s) accused and of the person(s) making the allegations as far as is possible given the need for due process in pursuing the enquiry;
4. allow the accused person(s) due process and full opportunity to respond to the allegations throughout the enquiry through mechanisms consistent with due process and natural justice;
5. decide whether or not there has been misconduct;
6. determine the actions to be taken as a result of conclusions reached, including:
   - 6.1. any sanctions imposed;
   - 6.2. any actions taken to protect or restore the reputation(s) or credibility of any person(s) wrongly accused of, or implicated in, misconduct in research, including procedures to ensure that if the charges have been dismissed copies of documents and related files provided to third parties have been destroyed; and
   - 6.3. any actions taken to protect the person(s) deemed to have made a responsible accusation;
7. inform the accused person(s) of the results of the enquiry and of the actions that have been decided upon; and
8. prepare a report on the above.

3. Research Funding Councils

Allegations of misconduct made to the Councils or to research institutions might involve past or present grantees or awardees of the Councils, or trainees or staff supported from their funds or working in laboratories receiving their funds. Such allegations might also arise from the peer review processes of the Councils. Under provisions of the *Privacy Act*, the Councils may only transmit allegations of misconduct in research with the permission of the person making the allegations. The Councils will not transmit oral allegations to the institution, or otherwise act upon them, since these cannot be assessed or transferred accurately.

In the event that a Council, or one of its peer review committees, identifies evidence of misconduct as part of the peer review processes, the Council will request the institution(s) involved to carry out an enquiry and to inform the Council of the outcome.

The Councils request that institutions which have carried out enquiries of alleged misconduct in research or scholarship involving projects funded by the Councils provide the appropriate Council(s) with the report of their findings. The Council(s) will consider the report and may request clarification or additional information.

In cases in which misconduct is concluded to have occurred, the Council(s) will also consider imposing its/their own sanction(s) in relation to grants made to the individual(s) implicated, in accordance with Council policies. These sanctions may include, but are not limited to:

- refusing to consider future applications for a defined time period;
- withdrawing remaining instalments of the grant or award;
- seeking a refund of all or part of the funds already paid as a grant or award for the research or scholarship involved.

If such actions are being considered, the Council(s) will provide an opportunity for the person(s) involved to present a response.

The Council(s) will then inform the person(s) and the institution(s) involved of any impending sanction.

As agencies of the Federal Government, the Councils retain the right at any time to bring a case to the attention of the appropriate legal authorities.

Appendix 4: Requirements for Certain Types of Research

Research Involving Human Subjects

NSERC and the two other federal granting councils, CIHR and SSHRC, have adopted a revised policy statement governing research involving human subjects. The *Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans* is posted on NSERC's Web site, www.nserc.ca/programs/ethics/english/index.htm.

NSERC requires a review of the ethical acceptability of research involving human experimentation. Universities, research institutions and applicants must adhere to the Tri-Council Policy Statement in order to be eligible for Council funding.

Applicants must obtain appropriate certification indicating that research involving human experimentation has been reviewed and has received the required approval.

The signature of the university authorities on the grant application signifies that the university fully complies with the Policy and agrees to release funds only to researchers who have the necessary certification.

If, during the course of a grant, the research changes enough to require certification, NSERC must be informed promptly and the appropriate certification must be obtained within the university.

NSERC monitors adherence to these procedures as part of its regular monitoring visits.

Research Requiring the Use of Animals

Researchers who use animals in their research – any vertebrates and certain invertebrates, in particular, cephalopods (octopi and squid) – must adhere to the guidelines of the Canadian Council on Animal Care (CCAC) as published in the two-volume *Guide to the Care and Use of Experimental Animals*, which can be obtained from the Director of Animal Care at the university or from:

Canadian Council on Animal Care
Suite 315
350 Albert Street
Ottawa, Ontario K1R 1B1

Guidelines and other information can also be found on the CCAC's Web site: www.ccac.ca.

Institutions must conform to the CCAC guidelines for provision of adequate facilities to house and care for animals and to maintain local animal care committees for assessment and control of animal experimentation. Deliberate failure to comply with the guidelines could ultimately lead to the freezing of NSERC funds at the university.

Applicants must obtain certification from the animal care committee at the university that the experimental procedures proposed have been approved and that the care and treatment of animals is in accordance with the principles outlined in the CCAC guide.

The signature of the university authorities on the grant application signifies that the university agrees to release funds only to researchers who have the necessary certification.

If, during the course of a grant, the research changes enough to require certification, NSERC must be informed promptly and the appropriate certification must be obtained within the university.

NSERC monitors adherence to these procedures as part of its regular monitoring visits.

Alternatives to the Use of Animals

Research activities aimed at developing alternatives to the use of animals are eligible for NSERC support. Researchers who use animals for experiments are encouraged to use alternative methods when available.

Research Involving Biohazards

Researchers who are conducting, or propose to conduct, research involving biohazards must adhere to the standards outlined in the *Laboratory Biosafety Guidelines* (1996), which can be obtained from the Office of Biosafety, Health Canada. Fax your request to (613) 941-0596 or access the information on Health Canada's Web site: www.hc-sc.gc.ca/hpb/lcdc/biosafty/docs/index.html.

Applicants must obtain certification from the biosafety committee at the university that the laboratory procedures being used comply with the safety precautions necessary for the level of containment required by the research.

The signature of the university authorities on the grant application signifies that the university agrees to release funds only to researchers who have the necessary certification.

If, during the course of a grant, the research changes enough to require certification, NSERC must be informed promptly and the appropriate certification must be obtained within the university.

NSERC monitors adherence to these procedures as part of its regular monitoring visits.

Research Involving Radioactive Materials

Applicants carrying out research using radioactive materials must comply with all Canadian Nuclear Safety Commission (CNSC) [formerly the Atomic Energy Control Board (AECB)] regulations, recommended procedures, and safety precautions governing the use of such materials in Canada. This information is available on CNSC's Web site at www.nuclearsafety.gc.ca, or by calling 1-800-668-5284.

Research Involving Possible Effects on the Environment

NSERC is subject to the *Canadian Environmental Assessment Act* (CEAA). This law requires that federal departments and agencies ensure that environmental assessments are completed for projects, as defined in the Act, in which the department and/or agency is involved. A revised CEAA is expected to be passed in the fall of 2000.

The purpose of environmental assessment (EA) is to integrate environmental considerations into decision-making before an irrevocable decision is made. The approach used in EA is to evaluate the potential environmental effects in the planning stage of a project as early as possible. The principal result of the assessment is an analysis that informs decision-makers about the types of potential environmental effects (e.g., effects on flora and fauna, and on human health).

In Form 101 (Application for a Grant) Part I, all applicants must indicate whether or not the proposed research will (a) take place outside an office or laboratory, or (b) involve an activity that requires a permit, licence or approval under any federal statute. If the answer to either question (a) or (b) is "yes," the applicant must complete Form 101 (Application for a Grant) Appendices A (Environmental Impact) and B (*Canadian Environmental Assessment Act* Pre-screening checklist), and submit these with the grant application.

Appendix A is filled out by an applicant whose research involves any kind of work outdoors, including field work, the operation of field or marine stations, the use of hazardous substances (outside a laboratory having established hazardous waste control procedures), or other activities that may affect the environment. The applicant must describe the nature of the potential effects on the environment, as well as mitigation measures that will be undertaken to alleviate these potential effects.

In Appendix B, the applicant must complete a checklist. A "yes" in any field may indicate that a Screening may be required under the *Canadian Environmental Assessment Act*. NSERC staff will contact these applicants directly to obtain more information on the proposal and determine whether a Screening Report under the Act is needed.

The information contained in Appendices A and B will be used by NSERC to identify potential environmental effects. The Canadian Environmental Assessment Agency requires that "tombstone" information from the Screening Report be placed in a public registry. Only those proposals which are subject to the CEAA will be placed in the public registry by NSERC.

Grant holders must advise NSERC promptly and provide completed Appendices A and B if, during the course of a grant, the nature of the research activities change substantially and that may result in potential effects on the environment.

Researchers are responsible for ensuring that research assistants and laboratory personnel are aware of any hazards (e.g., handling of chemicals, diving, etc.) that may be encountered in the course of the research. Personnel must be adequately trained, and appropriate protective procedures must be enforced.

Access to Special Services or Facilities

Applicants whose research requires the services or facilities of a government agency (e.g., ship time, beam time, transportation, use of towers, platforms, etc.) must outline in their application the steps taken to ensure the availability of services. Indicate whether approval has been granted and whether funds are being requested from NSERC for this purpose. If so, costs should be clearly documented.

Researchers requiring ship time should contact NSERC directly for information on application procedures, and submit a Ship Time Request Form (form 128) as follows:

• Research Grants	by October 1
• project grants (i.e., Strategic, Research Networks)	with the project application (include the funds requested in the project budget)

Licences for Research in the Yukon, the Northwest Territories and Nunavut

All researchers doing research in the Yukon, the Northwest Territories and Nunavut must be licensed. The licence requirements apply to all government, university or private sector research. Northern-based researchers and members of northern communities must comply with licensing requirements. Those working on projects led by government researchers must ensure that all procedures have been followed to obtain licences. Failure to comply with the regulations may result in refusal of permission to publish data under terms of intellectual property rights and the land claims legislation.

Information about licence requirements for research in the Northwest Territories may be obtained from:

Manager Research Services
Aurora Research Institute
Box 1450
Inuvik, Northwest Territories X0E 0T0
Telephone: (867) 777-3298
Facsimile: (867) 777-4264
E-mail address: valw@inuvik.net
Internet address: www.aurresint.nt.ca

Information about licence requirements for research in Nunavut may be obtained from:

Manager, Research Liaison
Nunavut Research Institute
P.O. Box 1720
Iqaluit, Nunavut X0A 0H0
Telephone: (867) 979-4660
Facsimile: (867) 979-4681
E-mail address: slcnri@nunanet.com
Internet address: www.nunanet.com/~research

Information about license requirements for research in the Yukon may be obtained from:

Director, Department of Tourism
Heritage Branch
Government of Yukon
Box 2703
Whitehorse, Yukon Y1A 2C6
Telephone: (867) 667-5386
Facsimile: (867) 667-8023
E-mail address: eking@gov.yk.ca

Research in the North should be governed by a set of ethical principles (see *Ethical Principles for the Conduct of Research in the North*, Association of Canadian Universities for Northern Studies 1998). Communities in the North are fully advised on their rights with respect to research on their land, e.g., *Negotiating Research Relationships: A Guide for Communities* (prepared by the Nunavut Research Institute and Inuit Tapirisat of Canada 1998). Researchers should consult these documents and contact the above addresses to get more information on licensing procedures. Do not direct enquiries to NSERC.

Appendix 5: Policy and Guidelines on the Assessment of Contributions to Research and Training

An important evaluation criterion in any grants program is the excellence of the researcher. Applicants and co-applicants are assessed on the quality and impact of their contributions to research and training over the past six years, and on their stature, knowledge of their fields, and demonstrated expertise.

1. Contributions to Research

The research process is not complete until the results are validated and transmitted to an appropriate target audience. For many disciplines, the most common and effective means of disseminating results is through the publication of articles in refereed journals. However, other means of dissemination exist, including transfer of technology to Canadian industry, and the onus is on the researcher to select the most appropriate vehicle to ensure maximum impact on the field.

Applicants and co-applicants in Engineering and the Applied Sciences should read Appendix 6 for indicators of excellence and research contributions.

Assessment of Quality

The ultimate tests of quality of any research contribution or publication are its significance and use by other researchers and end users, and the extent to which it influences the direction of thought and activity in the target community. Evaluation of this, while subjective, is a central element of peer review.

Applicants are asked to indicate their most important recent contributions on the Personal Data Form (form 100) and may be asked to provide copies of, or documentation on, some of these contributions for the benefit of reviewers.

To focus the assessment of excellence of the researcher on the quality and impact of recent contributions to research, applicants are asked to identify their five most significant research contributions in the last six years and to describe how these contributions have influenced their field and/or the activities of users.

Selection committees and panels are advised by NSERC to neither rely on numbers of publications in their assessment of productivity nor create or use lists of "prestigious" or "unacceptable" journals in their assessment of quality. The quality of the publication's content is the determining factor, not that of the journal in which it appears.

Forms of Publication

There are many valid types of publications, including: articles, communications, monographs, memoirs or special papers, review articles, conference/symposia proceedings and abstracts, government publications, and reports documenting industrial contributions and contributions to engineering practice. Each type has its place and advantages, and there is much variation between and within disciplines.

NSERC advises its selection committees and panels to evaluate the quality and impact of all contributions and not to regard some as "second class" or "grey literature."

Some fast-moving research fields, such as some areas of computing science, genetics, or microelectronics, use special means to reach the target audience quickly. Communications, quickprint reports, letters, and even broad distribution of preprints are important vehicles for disseminating research results. Selection committees and panels rely on the specialist knowledge of their members to evaluate the relative merit and significance of such publications.

Contributions to Collaborative Research
Some researchers do most of their work in a collaborative mode. Publications are often prepared jointly with students, postdoctoral fellows, or other research collaborators. Applicants should describe their intellectual contribution to collaborative work or joint publications in their Personal Data Form. The assessment of a researcher's excellence must fully take into account the overall quality and impact of these collaborative activities.

Delays in the Research and in Dissemination of Research Results

From time to time, situations may arise that make it impossible or undesirable for researchers to publish important results of their research prior to reapplying for NSERC support. For example, the time required to complete a monograph may exceed the time available between consecutive applications, or publication may be delayed to allow technology transfer or patent protection.

NSERC recognizes that research productivity may vary during periods of pregnancy or early child care, whether or not a formal leave of absence is taken, or as a result of other personal circumstances. Administrative leave, disability, and other situations may also result in publication delays.

Applicants should clearly and fully describe any circumstances that delay research or affect dissemination of research results in their Personal Data Form. NSERC advises its committees to be sensitive to the impact of these circumstances on the level of productivity while ensuring that the quality of the research remains competitive. Each case is reviewed on its own merit.

2. Contributions to the Training of Highly Qualified Personnel

Advanced training in science and engineering is an integral part of university research and of NSERC's mission to foster the discovery and application of knowledge. This training contributes to the availability of a highly skilled labour force, capable of thinking critically and creating and applying knowledge for the benefit of Canada. Individuals trained in science and engineering are ideally positioned to capitalize upon new ideas and technologies developed in Canada and elsewhere in the world, regardless of the sector in which they are employed. Professionals in science and engineering contribute to our national competitiveness and productivity, as well as to our understanding of the natural and physical environment and ourselves, leading to improvements in the standard of living and quality of life for Canadians.

Training supported by NSERC ranges from undergraduate theses and summer projects to the postdoctoral level and includes technical and other research personnel. The level and content of the training should be appropriate to the research field, with opportunities for interaction and collaboration with other researchers inside and outside the university, where appropriate. Undergraduate student participation in final-year projects and summer projects is an important first phase in research training and plays a major role in encouraging excellent students to pursue research careers. For technicians and others who have been in long-term positions, the acquisition of new techniques and knowledge is an important contribution to training. In collaborative research involving non-university partners, student training may be enhanced by an exposure to an industrial work environment. Similarly, industry personnel can benefit from being involved in academic research.

NSERC also recognizes that not all research is appropriate for training and there will be circumstances when training will be limited. In these cases, the onus is on the applicant to provide an explanation of the absence of a training component.

The fact that an applicant has trained, is training or plans to train students, technicians, or postdoctoral fellows is not, in itself, a sufficient rationale for awarding a grant. A researcher's contribution to training will be assessed in terms of its quality and impact, and not solely in terms of the number of people supervised. Also, the applicant and the research proposal must meet the standards of excellence of the program.

It is expected that most trainees supported from a grant will produce theses and other high-quality contributions to knowledge, and will move on to professional careers in fields related to science and engineering in all sectors.

The following questions will be used as a guide by selection committees and panels when assessing your involvement in research training:

From information provided on the Personal Data Form

- Have the resulting contributions been of high quality?
- Have the students and other personnel gone on to further research training positions (e.g. Ph.D. program, postdoctoral position)?
- Have the people trained by the applicant gone on to become respected professionals in fields related to science and engineering, in all sectors? Examples of professional contributions:
  - transferring new knowledge and expertise from the universities to the Canadian private sector;
  - starting businesses, creating jobs and new economic opportunities;
  - maintaining Canada's international competitiveness in research in science and engineering, renewing our intellectual resources;
  - developing and implementing policies, standards and regulations on issues of national interest; or
  - maintaining and enhancing the national framework for competitive R&D through teaching, administration and research dissemination.
- In the context of the research field and the applicant's capabilities, is the past level of training activity appropriate? If not, has appropriate justification been provided?

From information provided in the application

- Are the projects feasible and appropriate for the training proposed?
- What opportunity will there be for training in a collaborative or interdisciplinary environment, if appropriate?
- What opportunity will there be for trainees to work with other sectors, if appropriate?
- Will trainees be able to make an original contribution to knowledge?
- If little or no training is planned, has an appropriate justification been given?

Appendix 6: Guidelines for the Review of Applications in Engineering and the Applied Sciences

Engineering is concerned with the application of knowledge for practical purposes. Research in engineering often involves the design or improvement of novel products and processes rather than (or in addition to) the creation of fundamental new knowledge. The same is often true for research in the applied sciences.

As a result, the indicators of excellence and research contributions for research in engineering and the applied sciences may be significantly different from those in the natural sciences. Specific guidelines have been issued by NSERC for use by the research community and by selection committees and panels that review applications in these areas.

All NSERC research programs include among their selection criteria:

- the excellence of the applicant and any co-applicant; and
- the merit of the proposal.

The following guidelines address these two criteria only; it should be remembered that there are other criteria which must also be addressed. Refer to the "Review Procedures and Selection Criteria" for the applicable program in Chapter 2.

1. The Excellence of the Applicant(s)

The assessment of excellence is based on the applicant's and co-applicant(s)' expertise and track record over the past six years, focusing on their contributions to and impact on the field and profession. These include:

Significant Research Contributions

Selection committees and panels assess the quality and overall impact of contributions. In addition to refereed journal publications, conference proceedings, monographs and books, other contributions to engineering and the applied sciences can be considered and assessed as to their quality and significance.

Many contributions to industry or other end-users take the form of technical and internal reports, some of which may be confidential to protect proprietary information. Letters from senior officers in the organization who received the report, attesting to the nature and significance of the contributions, should be solicited.

In all cases, applicants should provide the report title, the name of the recipient, the date, a concise description including a summary of the results, and an explanation of the significance of the work, on their Personal Data Form (form 100). Applicants should describe the importance of the industrial contribution in terms of the novelty and innovation of the research as opposed to the simple provision of a service, and explain how the work is related to the NSERC research proposal. Where permitted, applicants should include significant reports in their NSERC application.

Patents protecting technological products, processes or services are important indicators of creative applied research. Evidence that the patents are being used should be included as an indication of the impact of the work.

Other contributions that lead to commercially viable products, processes or services through technological innovation or the transfer of technology should be presented and their significance explained. These may include:

- creation of computer software packages;
- development of new genetic lines from plant or animal breeding;
- work incorporated into a recommended practice or building code; or
- work performed as part of a technical committee.

Other Evidence of Contributions to the Profession or Impact on the Field

Excellence and impact on the profession or field can also be demonstrated by such activities as membership on code, selection or other committees, advisory boards, and boards of directors, and by research interactions resulting from collaborative projects, consulting, or research leave spent in industry, government or business. Applicants should explain the impact of these activities on the field and profession, and describe the technology transfer involved.

Applicants should document the above information on the Personal Data Form (form 100), making the strongest possible case in the space provided.

2. The Merit of the Proposal

As in all disciplines, this criterion is a composite of the following factors:

- originality;
- anticipated significance;
- clarity of long- and short-term objectives;
- suitability of proposed methodology; and
- feasibility.

The major emphasis is on the degree of innovation and the potential to make a significant contribution to the field. In engineering and the applied sciences, consideration is given to the potential for technological impact and the degree to which the proposal addresses present or future socio-economic needs. Applicants should discuss the specific problem being addressed and the potential applications of the research.

Appendix 7: Target Area Descriptions – Strategic Projects

The target areas for the Strategic Projects Program are currently under review. They will be announced late in the year 2000. Please consult the NSERC Web site (www.nserc.ca) for the latest information on the revised target areas.

Appendix 8: Guidelines for Supporting Organizations

A. Guidelines on Industrial Partnerships

Different NSERC grants have different requirements for non-academic partnerships or collaborators. Refer to the program descriptions in Chapter 2 for details.

Industrial Partners

An industrial partner can be a single firm, an industrial association or producer group, a formal or informal consortium, a provincial utility, certain federal crown corporations, or a grouping of these. For CRD projects only, provincial agencies with a mandate for forest management are eligible as sponsors if there is also substantial involvement of bona fide private sector entities.

Foreign firms not operating from a Canadian base are accepted as partners only if the funded activity will result in significant economic benefit to Canada.

Incorporated industrial or quasi-industrial organizations that obtain their research funds from both non-private and private sector sources may be eligible industrial partners to the extent that their contributions are shown to have come from the industrial sources.

Public sector organizations are welcome to join industry in sponsoring a research activity, but their contributions are not recognized in determining cost-sharing ratios.

Start-Up Companies

Start-up companies that have sound business plans and secure financial backing may be accepted as industrial partners. However, they must demonstrate that they have, or have the potential to acquire, the capability to utilize the research results.

Researcher-Owned Companies

A researcher's own consulting company or sole proprietorship is not eligible to collaborate on a project in which the researcher is the applicant or a co-investigator. Other cases of researcher-ownership in an industrial partner are considered on a case-by-case basis and may be considered acceptable if the following conditions are met:

- there is significant investment by sophisticated investors, indicating there has been an objective assessment of the commercial potential of the research and the company's viability;
- the company has its own facilities, physically separated from the university researcher's laboratory (e.g., located off campus or in a university incubator facility);
- the company employs its own professional staff, apart from the university personnel, that is able to receive and incorporate the results of the university research into company operations;
- the company is under the effective day-to-day management control of someone other than the university researcher;

- the company has a board of directors with external members (i.e., some of whose members, including the Chair, are at arm's length);
- the commercial activity conforms to the university's established policies relating to the disclosure of commercial interest and conflict of interest; and
- the university is prepared to ensure that the academic interests of students and postdoctoral fellows are protected.

Industrial Contribution Levels

The general level of participation expected of an industrial partner is specific to the individual type of grant (refer to Chapter 2 for details). In some cases the following factors may be considered in determining an appropriate cost-sharing ratio (refer to Appendix 8, Section B, for details):

- the size of the company;
- its R&D budget;
- the risk inherent in the research;
- the access to a company's specialized knowledge or facilities;
- the stage of technological development;
- the extent and immediacy of the expected return; and
- the amount of previous support of the proposed work.

B. Guidelines for Evaluating Cost-Sharing Ratios and In-Kind Contributions in University-Industry Collaborations

The industrial contribution to a university-industry collaboration is documented in order to 1) establish that sufficient resources are available to carry out the proposed activities; and 2) determine an appropriate cost-sharing arrangement in supporting the work.

The current norm in university-industry projects and faculty support grants is for industry to contribute at least half of the cost. In some programs the company contribution may be partly in cash-equivalent contributions in kind. Cash-equivalent contributions are those that are central to the research and would have to be purchased on the open market if they were not provided by the company. While there is some latitude in what is demanded from the industrial partner, a substantial cash contribution is generally required.

Exceptions to the norms may be made where:

- a small or medium-sized company has a limited ability to contribute in cash and/or where the critical importance of the in-kind contribution to the research justifies a smaller cash contribution by the company; or
- a direct commercial benefit is anticipated in the near term, or a proposal builds on work funded by previous NSERC university-industry grants, making it reasonable for the industrial partner(s) to bear a greater share of the cost than NSERC.

Regular industrial membership or subscription fees in industrial consortia, or payments to cover general operational costs or overhead charges to institutions eligible to receive NSERC grants, are not eligible as industrial contributions to NSERC grants programs.

In-kind contributions that are essential to carrying out the work are fully recognized when evaluating cost sharing. Such cash-equivalent contributions could include donations of critical pieces of equipment or special materials, provision of technical or professional services, or access to special equipment.

Other less tangible costs such as secretarial or accounting services, cost of time attributed to research management, general overhead costs at the company, or other indirect costs, are given less credence.

Contributions must be fully documented to be recognized.

Each case is considered on its merits, and while an aim of costing the in-kind contribution is to arrive at equitable cost sharing, quantitative assessments may prove difficult. In some special cases involving "meritorious initiatives," and where the precise valuation of a contribution is difficult, NSERC exercises discretion in deviating from normal practice.

Eligibility and Value of In-Kind Contributions

This list is not all-inclusive. If in doubt as to the acceptability of a particular item, consult NSERC.

Category	Accepted	Not Accepted
Access to Unique Databases	• Incremental costs of access	• Cost of collecting the database
Analytical and Other Services	• Internal rates • Incremental cost of providing service	Commercial rates
Equipment	• Donated (used) - fair market value - company book value - price for internal transfers • Donated (new) - selling price to most favoured customer (if stock item) - cost of manufacture (if one of a kind) • Loaned - rental equivalent based on depreciation - rental equivalent to highest-volume rate • Sold - difference between discounted price and selling price to most favoured customer	• List price or discounted list price • Rental equivalents exceeding accepted values had the equipment been donated or sold • Development costs
Faculty Remuneration	• Payment to the university for release time from teaching duties	• Payments to the grantee as consulting fees or honoraria (additional to normal salary)
Materials	• Unit cost of production for commercial products • Selling price to most favoured customer • Price for internal transfers • Cost of production of prototypes and samples	• Development costs

Category	Accepted	Not Accepted
Patents and Licences	• Licences acquired from third parties for use by the university	• Patent protection • Licensing fees paid to the university
Salaries	• Typical salary cost (including benefits plus overhead) at internal rates or PWGSC-negotiated rates for management, scientific and technical support	• External charge-out or consultant rates • Costs relating to administrative support where overhead has been included in salary costs
Software	• Copying costs • Licensing cost • Documentation cost • Cost of training and support of software • Cost of equivalent commercial product (where donated software is not commercially available)	• Development costs
Travel	• Travel costs to meet with university personnel	• Conference travel
Use of Facilities	• Internal rates for logistical support, food and lodging for university personnel working on company premises or on field work • Internal rates for use of specialized equipment by university personnel or use of process or production lines • Internal rates for value of lost production resulting from downtime	• Use of equipment by company personnel if overhead is attributed to salaries of company personnel • Space for company activities outside the scope of the specific proposal • Equivalent commercial rates

Appendix 9: General Guidelines for the Public Announcement of Major NSERC Awards

Since major NSERC awards present valuable public relations opportunities for universities, and corporate and government sponsors, NSERC recommends a careful planning approach to award announcements and their associated events (e.g., receptions, press conferences, news releases, etc.).

The following information and suggestions are intended for applicants who have just been awarded a major grant:

1. Public relations announcements should be planned in close consultation with NSERC. Unless there are exceptional circumstances, they should not occur until all NSERC award conditions have been met.

2. Scheduling the participation of senior representatives from different organizations can be a challenge. We strongly recommend building plenty of time into the planning process. While Council or staff representation is desirable at all announcements of major awards, this is not always possible.

3. NSERC participation in public relations events will be coordinated through the NSERC Communications Division. The contact person is Francis Lionnet; telephone: (613) 992-9001; facsimile: (613) 943-0742; e-mail: francis.lionnet@nserc.ca.

4. An initial assessment of public relations interest and potential should be carried out by the applicant in consultation with all the corporate and government sponsors, and with the university's communications or external relations department. Is public relations a priority for this award? Do the sponsors want publicity at this time? What is the potential news angle, if any? What type of event is appropriate? A simple reception? A formal press conference? Just a press release? Who will be responsible for the organization of the event and costs?

5. For major awards, NSERC is required to brief the Minister of Industry or the Secretary of State (Science, Research and Development). The involvement of federal or provincial politicians invokes special protocol consideration and puts extra demands on the planning process. NSERC must be consulted before any invitations are extended.

6. NSERC reserves the right to review drafts of public releases and background material. We may be able to correct an error or suggest a useful addition. This also applies to awards where we have no representative present.

7. NSERC's name should appear in the formal title of research Chairs. Furthermore, if we are the major contributor, we will expect our name to appear first, e.g., "the NSERC/sponsor Chair in..." NSERC reserves the right of approval of all titles.

8. NSERC values the feedback it receives after each event. Tell us which things worked and which didn't. We also appreciate receiving copies of any news coverage. This information is very helpful for the planning of future events. In return, we will share our knowledge and experience with you.

9. If you require more information, or wish to discuss announcement of an award, please contact us at the numbers above (item 3).

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Where Can I Get More Information?

Staff in the research grants office at your university can usually answer questions about awards offered by NSERC (the Natural Sciences and Engineering Research Council of Canada). They can also give you copies of our guides, application forms and other publications. You can also access this guide and other NSERC material on our Web site, www.nserc.ca.

If you have questions that are not addressed in our publications and cannot be answered by staff at your university, you should contact NSERC. You can communicate with NSERC staff via the Web, or you can call one of the following numbers:

General Inquiries	**Area Code (613)**
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Research Grants	**995-5829**
Strategic Projects	**996-2717**
Research Networks	**996-2717**
University-Industry Programs	**996-1898**
Scholarships and Fellowships	**995-5521**
Use of Grant Funds (casdfin@nserc.ca)	
- Alberta, British Columbia and Ontario	**992-0570**
- All other provinces	**996-8351**

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NSERC
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